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LECTURES
ON
COMPARATIVE ANATOMY
AND
ANIMAL PHYSIOLOGY,
DELIVERED BY

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LECTURE XII.

ON THE DEVELOPMENT OF THE SKELETON OF THE VERTEBRATED CLASSES, AND ON THE OSTEOLGY OF FISHES.

FROM the constancy and regularity of the laws of development which you have witnessed in the lowest tribes of animals, and from the gradual manner in which you have seen the changes effected in all the important parts, you might necessarily expect that we should find traces of the shell itself of the invertebrated classes still lingering in the class of fishes; that notwithstanding the degraded forms of it which we endeavoured to trace in the cephalopods, it might still have left traces of its existence even in the vertebrated classes, and especially in that class which is at the bottom of all the vertebrated series. You might, more especially, look for the remnant of the external shell of invertebrated animals in those vertebrata which have the least development of the internal articulated skeleton, that is to say, in the cartilaginous fishes. From the cartilaginous and the osseous fishes upwards through the amphibia, the reptiles, the birds, and the quadrupeds, the internal articulated skeleton takes all the earthy matter for its consolidation. The energies of nature to perfect and strengthen the osseous skeleton, the internal articulated skeleton, have so completely abstracted all tendency to calcareous depositions on the surface, all tendency to the development of superficial shells, that you can trace only remnants of them, frittered down into the form of detached scales, spread over the surface of the skin; but in many of the cartilaginous and even of the osseous fishes these remnants of the external shell are still very obvious.

The sturgeon is one of those cartilaginous fishes, and you observe that although the internal skeleton is soft, cartilaginous, and flexible, almost destitute of the solid earthy matter, the exterior of its body is covered with dense white plates, that contain in them infinitely more hard materials, more phosphate of lime, than twenty times this soft internal articulated skeleton; yet in all those solid parts that cover and shield the exterior of the whole body, there is nothing in the least analogous to any part of the internal articulated skeleton of vetebrata; it is entirely a remnant of the superficial shells of invertebrated animals. You observe them in these animals, covering not only the head and the branchial openings, but extending over the whole body, in the form of a series of flat, carinated, articulated shells. Five rows, connected with each other, extend over the trunk of the animal. In minuter forms they extend even over the tail and over the fins, and over all the surface of the body, but subdivided into smaller parts. In many of the other animals of this class we still find remnants of them upon the surface of the skin, in various forms of dense calcareous scales. Nothing is more familiar to you than the appearance of these detached, solid, spiny bodies in the skin of the common skates. In most of the cartilaginous fishes these remnants of the external hard parts, or unorganised invertebrated skeleton, cover the whole exterior of the body.

The scales of fishes are shells which grow by the addition of layer after layer of phosphate of lime to their inner surface.

They are not deciduous parts, but there is a thin superficial layer of the epidermis which periodically is thrown off, and that gives rise to very beautiful changes in the lustre and in the play of colours of the scales.

These remnants of the external skeleton of the invertebrated classes, present infinite variety in their forms and extent of development in this class. In most of the osseous fishes, they form an imbricated coat of mail over the whole surface of the body. In the *plectognathi*, they generally construct a regular Mosaic work. In the *lophobranchii* they are large, and give an angular form to the surface of the body, as in the *hippocampus*, *pegasus*, and *syngnathus*. And in the rays and sharks they are small, close, and sharp as needle points, so that these skins are employed in polishing hard substances. In many fishes the skin is nearly as naked as in the cephalopods, as you observe in this sea lamprey.

You have already traced in the cephalopods the first development of the occipital bone, or the first cranial vertebra, proceeding from behind, forwards through the skull. You have also seen the elements of the vertebral column behind the skull, developed in the cephalopods. And without taking arbitrarily any particular part of their osseous skeleton, you have seen that there were hard internal organised parts, consolidated, like the bones of vertebrata, by phosphate of lime, to the cephalopods, to which the muscular system was attached. Here I do not allude to the shell of the sepia, or to the still more important shell, of a cartilaginous consistency, of the *loligines*, but to those cartilaginous parts extending from the occipital bone along the back of the neck of the cephalopods. In the lowest condition of fishes, as in the myxene and the lampreys, there is little else developed but the vertebral column. That vertebral column consists of a soft and almost gelatinous texture, not yet consolidated by the deposition of earthy matter. The earthy matter is found in those, however, by the analysis of CHEVREUL, diffused through the cartilaginous substance. In the softest skeletons of the chondropterygious fishes, there is a little difference in the earthy matters from those which you find consolidating the more dense form of the skeleton of the osseous fishes, and the higher forms of the vertebrata. CHEVREUL found that the animal matter of the bones of fishes did not yield, by boiling, that gelatine which is so copiously afforded by boiling the bones of hot-blooded vertebrata. He observed that the bones of the cartilaginous fishes yielded a much greater proportion of water, and of the soluble salts of soda, the chloruret, the subcarbonate, and the sulphate, than the more dense bones of the osseous fishes which abound chiefly in the more insoluble phosphates. The soft bones of the *squalus maximus* were found to contain sulphate of soda, chloruret of sodium, subcarbonate of soda, and a very small quantity of the phosphate of lime, magnesia, oxide of iron, alumina, and silica.

Now it is interesting to observe this condition of the skeleton in the lowest of the vertebrated animals—this soft homogeneous, cartilaginous, flexible condition of the bones, because you well know that the skeleton in your own body, at its first development, before it begins to be consolidated by the deposition of earthy matter at various points of it, was in the condition of the bones of these cartilaginous fishes. We observe this, not simply in the constitution and softness of the texture, but also in the total want of those subdivisions that afterwards constitute the separate bones; for you well know that, in the human skull, for example, it is the ossification which gives rise to the existence of the separate bones; that at first it was without suture, and entirely undivided, as you see it in these cartilaginous fishes, where you observe that the whole skull is composed of a single piece of soft transparent bone. There are no sutures traversing the cartilaginous texture covering the brain in the *shark*, the *rais*, and many other cartilaginous fishes; but when the ossification advances to a higher degree, and shoots out its earthy matter in radii of crystalline form, then you have the commencement of distinct bones, and the sutures which bound them.

When you observe the condition of these bones, even in the osseous fishes, you see a transparency, a translucency, a softness in the whole texture, in the densest bones of those fishes. When you look at the condition of the earthy matter (that here in the perch (O^*) consolidates the occipital bone, the parietal bones, the frontal bones, the sphenoid bone itself, you observe that the white opaque earthy matter shoots out through the transparent mass, in the form of straight or radiated fibres. You may look at this condition of the bones of osseous fishes, then, as the ossification of the human skeleton a little further advanced.

It is still further advanced in the reptiles; further in quadrupeds, and the densest osseous textures of all the vertebrata are met with in the class of birds; for if you look at the ossification in the human bones, as in the parietal bone, or the frontal bone, at a very early period, you see almost pre-

cisely the translucent, fibrous, radiated, primitive condition, which characterises the bones of osseous fishes; but the osseous fishes proceed no further than this, in the consolidation of the bones of their skeleton; you must go through higher classes of vertebrated animals, in order to watch the successive stages of the development of the human bones.

Now the part of the skeleton which you see first developing in the cephalopods, as well as in the highest of the vertebrated classes, is the vertebral column. The part you find also most developed in the class of fishes is this vertebral column, which sheathes and protects the great centres of the nervous system. For all the living motions of these animals, likewise, this is the part of the skeleton that is most important. To us, tracing the development of higher forms of skeletons from their simple conditions, this forms also a very important part. The vertebral column which sometimes constitutes nearly the whole skeleton of fishes, is composed of numerous vertebræ, but this column is at first composed altogether of a single piece, without joints or articulations. This is only another example, illustrating what we have often already seen, that where the skeletons are already composed of a substance which is soft and flexible, they require no articulations, and have none. You have seen, in looking at the development of the skeletons in the articulated classes of animals, from the simple condition of worms, where often there is no trace of articulations, that the parts of the skeleton first become condensed, and then the articulations become obvious. The same is seen in comparing the soft *tunicata* with the calcified covering of the *conchifera*. Thus you observe those analogous changes or conditions of the skeletons in the class of fishes.

This vertebral column consists, in the osseous fishes, where the whole of the bones are of a dense texture, of numerous pieces or rings or vertebræ placed in a longitudinal series, which are merely repetitions of each other, and compose a hollow column. These vertebræ, when you examine them carefully in their most complex forms, are not composed of a single piece, but actually of numerous portions or elements, approximated or anchylosed, which are common constituents of these bones in all the vertebrated classes. You perceive that in the class of fishes, the bodies of the vertebræ are the parts that are largest and most developed. This long vertebral column of the shark, which I hold in my hand, consists of nothing but the bodies of the vertebræ. All the other elements have been removed from this specimen by maceration, because there was nothing else united by ossification to the vertebral column, nothing else anchylosed to these bodies. These vertebral bodies, however, you observe, in the entire skeletons of sharks, to have other parts developed around them, which are gradually united to them by ossification in higher forms of fishes, in osseous fishes. It is thus that we get from this central column to the first development of all the most essential parts of the skeleton in higher forms of vertebrated animals. We find that the vertebral column is here the most developed portion of the skeleton, because fishes require chiefly that part in all their living movements through the water. But we observe that the vertebral column supports at its upper part the spinal marrow, and at its lower part the continuation of the aorta. It forms thus for itself two rings, one above and one below the bodies of the vertebræ. These rings are similarly constructed, both above and below. They

are composed, when in their most complete forms, of several pieces; the two first, which we observe ascending from the sides of the *bodies* (*L* a*), are the two *superior laminæ* (*L* b, b*) which develop the oblique or articular processes. We observe ascending from these lateral laminæ, which tend to form the walls of the *superior canal* of the vertebral column, the *superior spinous processes* (*L* c*). These are three pieces which serve to complete, with the bodies of the vertebræ, a tube through which the spinal marrow passes. On the lower part of the bodies we observe also *inferior laminæ* (*L*, b**) developed. These you will see continued through all the succeeding classes of vertebrated animals, —these laminæ developed from the lower parts of the body, — and these complete their cavity, the *inferior canal*, the inferior foramen, by the development of an *inferior spinous process* (*L*, c**). All these parts, taken separately, are very distinct elements in the most complex and perfect forms of

vertebræ. In the skeleton of the porpoise before you, which so closely approaches to that of fishes, you will observe the canal formed between the spinous processes and the body below; the same above; and you see the same in amphibia, reptiles, birds, and mammalia. In order to get at the nature of all the elements of a vertebra, then, do not take the vertebra in the simplest form, but seek for it in the most complex form of all.

In addition to these parts, so essential in fishes, we observe two other elements of great importance, particularly in the higher classes of land animals, for the attachment of ribs, muscles and ligaments, developed from the sides of the vertebral column; these are the two *transverse processes* (L^* d, d_1). Now you find these bodies of the vertebræ in fishes to have a concave terminal surface both before and behind (M^* a, c), so that when they are applied to each other they form a series of cavities filled by a soft substance, sometimes in a fluid state, and filling a capsule (M^* d), and distending it so firmly, that when perforated the fluid is squirted out to a great distance; in fact, forming, as it were, a tense ball, of a fluid substance, interposed betwixt each pair of vertebræ. Now observe the importance and the advantage of this for the extensive lateral motions of the column of fishes; observe that each and all the vertebræ play upon a soft, smooth, interposed ball, giving a flexibility and elasticity which are not equalled by any of the higher classes of animals. This character, which is so remarkable in the bodies of the vertebræ of fishes, you still find in all the tadpoles, and some of the adult amphibious animals. But in former conditions of this planet there have been gigantic tadpole forms of reptiles inhabiting the seas and the estuaries of great rivers, that have presented the same character in the bodies of their vertebræ, as we now find in fishes. For instance, the *ichthyosaurus*, in that stupendous reptile, like to which there is nothing now left in the sea or on the face of the earth, with the arms of a dolphin, the eyes of a bird, the head of a crocodile, and the tail of a tadpole; the bodies of the vertebræ were like those of fishes, with a cup-like cavity before, and a cup-like cavity behind.

These bodies of the vertebræ of fishes begin to consolidate from the circumference, and rings are added gradually to the interior, but you perceive that these have proceeded concentrically inwards, from the circumference to the centre, in a decreasing series, so that the result has been, on both sides, this funnel-shaped depression (M^* a). Now this gradual filling up by the deposition of ring after ring into the interior, sometimes takes place to so small an extent, that there is a considerable passage through the whole vertebral column, and most fishes have more or less of this perforated character of the bodies of their vertebræ. The bodies of the vertebræ thus having a passage in their centre (M^* e), all communicate with each other; therefore the intervertebral substance is not always confined solely to the intervening space betwixt two vertebræ; but often it occupies, like a continuous chain of beads, the central part of the whole of the bodies of the vertebræ along the column. Thus the bodies of the vertebræ of fishes present numerous concentric rings of growth, like the section of the stem of a tree, and the first exterior hollow layer, when alone formed, has been compared to the exterior hollow rings encompassing the segments of articulated animals.

Now we observe that these laminæ (L^*, b, b), which extend upwards from the sides of the upper part of the bodies of the vertebræ, become early consolidated. They are the parts of the column which we already find in the cephalopods, and the parts first consolidated, when you examine them in the cartilaginous fishes. The nervous system is and should be protected externally, before it is protected by a solid part within. You can easily perceive this consolidation of the laminæ in this shark, and in several other specimens of this animal that are before you, and still better in the sturgeon; indeed in the sturgeon, you have a beautiful illustration of this fact, that while the bodies of the vertebræ remain perfectly united, transparent, soft, and cartilaginous, the laminæ and the spinous processes, and the transverse processes themselves, have become white, opaque, and ossified, and have received a larger quantity of the earthy matters we have enumerated than the bodies themselves.

Now we observe that there arises from between the distal extremities of these laminæ a spinous process (L^*, c); that spinous process is a part which is of great magnitude and importance in the class of fishes, because, as I mentioned to you before, of all the elements of the vertebral column, these are of the greatest use in all their living movements. They are animals poised in a dense medium of the same specific gravity, nearly as themselves, which move themselves through the water by the lateral movements of

their vertebral column. They are not like birds that move themselves through an attenuated medium, by the development of parts at a distance from the vertebral column; nor are they like quadrupeds, organised to support their body from falling to the surface of the earth, by extremities or pillars, also developed at a distance from the vertebral column.

Now these spinous elements, therefore, of the vertebræ, are largely developed in fishes. The spinous processes themselves, however, in fishes, give origin to other pieces. The spinous processes extending from the vertebræ of the fish, when they have become largely developed themselves, give origin to new bones, and afford us an illustration of a fact which is remarkable for its uniformity in other parts of the skeleton, and in other animals. A separate centre of ossification is developed—a new source of nutrition is conveyed directly to the extremity of the part—a new bone is formed from the end of the spinous process. The first bone you perceive developed from the spinous process, is that which supports the *rays* of the fins; it is placed between the spinous processes (*O**, *b*, *c*) and the rays (75); it is called the *interspinous bone* (*L**, *f* 74). These interspinous bones and rays are developed from the inferior as well as the superior spinous processes (*L**, *f**).

Fishes move themselves not merely by their arms (*O**, 50) and by their legs (81), which are but slightly developed, but they bend their vertebral column in different directions towards the sides of their body. They shoot out these interspinous bones and rays, which, pushing the integuments before them, and covered with skin, form the various dorsal (75) and anal (79) fins which you observe on the median plane in fishes. These bones that support the membranes of the fins, are called the *rays* (*L**, *g*, *g** 75). The rays in their most solid form, as you see in the anterior dorsal fin of the perch, are composed of bone—a long slender flexible bone, generally divided longitudinally into two pieces, so that by this division it gets both increased flexibility and strength. There are numerous other forms of these rays. We frequently find them jointed and ramified, as in all the fins of the perch except the first dorsal, constituting the soft rays of fishes. It is from this difference in these rays, which you observe are originally developed from the vertebral column, that the great division of fishes into acanthopterygii and malacopterygii, two orders which comprehend most of the known species of this extensive class of vertebrata, has been founded by naturalists.

Thus then we have got organs developed along the median line in fishes, which do not manifest themselves in the human body—which are not developed nor required in the higher forms of vertebrated animals, particularly in those that live upon the dry land, or fly through the atmosphere. This is the origin of the various fins that are placed on the median line. When they are developed from the spine, between the head and the tail on the middle of the back, they are called *dorsal* (*O** 75) fins; at the extremity of the tail, *caudal* (71) fins; between the tail and the anus, *anal* (79) fins. Such are the organs of motion, thus developed from the skeleton, placed upon the median line.

Now we observe the same phenomenon taking place in the development of the transverse processes. The *transverse processes* (*L**, *d*, *d*) of the vertebræ of cartilaginous fishes are generally imperfectly developed. When those parts, however, require a greater development, we find that they obtain a separate centre of ossification—a separate nutritious artery; for the chief mystery in development lies in the distribution of bloodvessels—the nutritious arteries of the bones. When the transverse process extends much at its extremity, there is a separate nutritious artery—a new centre of ossification, which develops a small *rib* (*L**, *e*, *e*), as you see in these skeletons of sharks and rays. However small that detached portion is at the extremity of the transverse processes, it is called a rib. It may not be the twentieth part of the length of the transverse process to which it is attached. Thus then we obtain a new part, which may proceed in its development, if required, to a very great extent,—till those of the opposite sides meet in front.

What I have said regarding the developments from the spinous processes above, may be said with regard to those below. They may develop an interspinous bone, and that ray projecting from the body, and would give us a series of rays belonging to an anal fin. In the higher forms of the vertebrated animals, there is but little use for the development of the spinous processes below; but still you observe them, in the coccygeal region, throughout all the vertebrated classes, although developed to a less extent. The spinous processes, the two laminæ, the transverse processes, and the body, all develop additional parts, for the two laminæ develop the oblique processes. There are two other terminal elements of the body of the vertebra, which at present are of less importance, as they belong to the skeletons of higher vertebrata. You perceive in these skeletons of

cetacea, that the body of the vertebra itself consists of three elements—the central large portion, and these two thin terminal pieces that bound the body above and below—the terminal elements of the body of the vertebræ. Now thus we have the vertebral column formed of vertebræ, which shoot out elements from four points at right angles to each other; and the transverse processes themselves, like the spinous, develop arches to protect the vertebral arteries.

It is chiefly upon the position occupied by these parts developed from the vertebral column, and upon the extent of their development, that the skeletons of the vertebrated animals differ so much from each other. You see how obviously the ribs are developed from the transverse processes in the lowest classes of vertebrata; and so are all the other arches which hang down from the sides of the vertebral column, from the lower jaw to the extremity of the coccyx. In the shark, and in many of the cartilaginous fishes, you have only small rudiments of ribs at the extremities of the transverse processes. In others, again, these transverse processes themselves are large and bifurcated, a character we frequently see in the ribs of higher animals, particularly in birds. The ribs form parts of great importance in the vertebrated classes. They extend outwards, or hang down from the sides of the vertebral column. They form the walls of a cavity that is to lodge and protect some of the organs most important to the continuance of life. When the ribs begin to be developed from the first vertebra behind the head, we commonly say there are no cervical vertebræ. It is so in fishes (N^{o} 3). We see the same thing in serpents. In them the ribs begin from the atlas, and so proceed downwards; therefore, in common language, we say there are no cervical vertebræ. When there is a considerable interval between the first or most anterior ribs and the skull, we say then there are a great number of cervical vertebræ, as we see in this penguin and in the whole class of birds (N^{o}, 2 *a*). Thus in the swan we find there are twenty-three vertebræ developed before we come to the development of the ribs; twenty-three vertebræ between the skull and the first pair of ribs; that is to say, the ribs of the trunk are suspended in birds from a part of the vertebral column much further back than in fishes, so that the long neck of birds compensates for the want of prehensile arms. The animals belonging to the class mammalia, which come nearest to fishes in their general form, are the cetaceous mammalia. We find that in the cetaceous mammalia, the trunk of the body, or the ribs that envelop it, are suspended very far forwards upon the vertebral column. All their cervical vertebræ, consisting originally of seven, have become thin laminæ, and are often anchylosed into one single short piece; and even these thin laminæ themselves, which were originally seven, diminish, by anchylosis and absorption, in after life, in their number; even the separate foramina, through which the nerves originally came out from, or passed into, the spinal marrow coalesce, many of them into one, so that you cannot possibly count the original number in the adult of many of the cetaceous animals. You will observe, that in quadrupeds, whose carcass is suspended horizontally on four pillars, the part of the vertebral column from which the trunk or osseous case for the viscera is suspended is more near the middle; so that there are several distinct moveable cervical vertebræ, and several caudal vertebræ. This you observe in the badger, and in this skeleton of the hyrax (N^{o}, 1 *a*), the coney of the Scriptures, which I now hold in my hand.

The particular part of the vertebral column then, from which the ribs are developed, and which is a comparatively fixed portion, produces a most important alteration in the general form and character of the whole skeleton. In the vertebrated classes then, you see that these ribs, which tend to limit the motions of the vertebræ, are confined to the anterior parts in fishes, and in the cetaceous animals, so that the whole posterior part of the column in them is free for action. But birds, that are to stand erect upon their posterior extremities alone, and cannot put down their hands to rest on the ground, they being converted into wings for flight, require to have their neck much lengthened, to reach the ground, in order to pick up objects, and, consequently, they have the ribs developed only from the posterior part of the vertebral column, and more than twenty-two cervical ver-

tebræ we have seen quite free in the neck of the swan.

When we trace in the osseous fishes the formation of that inferior canal which lodges the continuation of the aorta, and the great vein proceeding to the kidneys, we find that it is formed in those animals, not by the meeting of laminæ, as in land animals, but by the transverse processes, which extend outwards and are far distant from each other in the region of the abdomen, where they protect the viscera, gradually converging as they approach the anus, and, as you will observe, at length meeting behind that passage, to form a pelvic cavity. Here the transverse processes have met, and formed a large circle. That, joined to those which succeed, forms a series of circles, and so large, that in fishes they almost serve the purposes of a pelvis; for we find, in the male, the testicles, and the kidneys, and the air bag, as well as the continuation of the great bloodvessels, and in the female the ovaries, with the other common parts, extending into the circles formed by the transverse processes of the coccygeal vertebræ, converging and meeting below. Thus, in place of developing ribs, they develop inferior spinous processes, interspinous bones, and the rays of anal fins. And we see, that in place of impeding the lateral motion of the tail, by extending out from the sides, they are bent down to assist in forming a broad surface to strike the water, and to protect from external injury the continuation of the aorta, and the great inferior vein returning the blood from the caudal parts, to be ramified through the kidneys, as the vena portæ through the liver. The canal above the bodies of the vertebræ transmits also, besides the spinal marrow, a large venous trunk, which, likewise, sends numerous branches to the kidneys. Many of the posterior caudal (*O*, 78) vertebræ give support to the rays of the caudal fin, as well as the last vertebra (70), which, however, is the most compressed and the most lengthened. This last vertebra, indeed, is almost all spinous process, its superior and inferior spinous processes being strongly expanded, directed backwards, and almost meeting behind on the median plane. The holes in the middle of the bodies of the vertebræ are so large in many cartilaginous fishes, that the intervertebral substances form a continuous beaded chord throughout the whole of the column, as you see in the lamprey.

We thus observe that the vertebral column beyond the abdomen develops, both above and below, several elements, corresponding exactly on those two sides. This vertebral column we trace in fishes through the floor of the cranium, through the basilar part of the occipital bone, through the sphenoid bone, and through the ethmoid to the point of the cartilage of the nose; and all these run here in the same straight line with the rest of the vertebral column. So constantly do we find the characters the posterior vertebræ to continue forwards through the cranium, that you will observe the body of the first cranial vertebra, or, in the language of human anatomy, the basilar part of the occipital bone, has the same concave surface which the vertebra had that united to it. This first cranial vertebra is much enlarged in fishes, for in them it requires to contain not merely the nervous system, but a large development of the arachnoid coat of the brain. That arachnoid coat is developed into a loose cellular tissue, filled with a colourless glairy fluid, and occupies all the upper part of the cavity of the skull of fishes. By thus expanding the occipital bone, it gives that which is necessary and important in fishes, a large surface of attachment for the powerful muscles that are to extend along the vertebral column, and to move it. The elephant, for example, in the mammalia, which requires also to have an enormously expanded occipital bone for the attachment of muscles, has it expanded by the development of the diploe, and not, as in fishes, by an enlargement of the cranial cavity for receiving the brain.

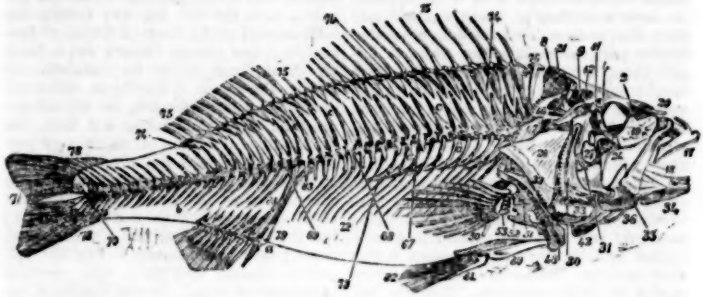
In fishes that diploe is a structure but slightly developed, for their cranial bones are all thin diaphonous laminæ, as those of the human fœtus; but the cavity of the skull itself is developed in fishes, and is filled by simply developing the arachnoid coat,—that glairy, soft, gelatinous substance which you see on opening the skull of fishes. This posterior cranial vertebra consists of distinct parts, which surround the occipital foramen, and which, by becoming anchylosed together in the warm-blooded vertebrata, constitute the occipital bone. The basilar part, by which alone the head is yet articulated to the vertebral column, forms the body of this vertebra, and its other elements form an arch above and an arch below, as in the vertebræ of the trunk I have already described. The two external and the two lateral occipitals form the upper arch, and the two opercular and two subopercular bones constitute the lower arch. And—proceeding forwards along the floor of the cranium, through the anterior portion of the basilar bone, the two portions of the body of the sphenoid, which is here remarkably long, through the body and lamina of the ethmoid bone

and the cartilage of the nose, which in fishes is situated between the vomer and the intermaxillaries,—we pass through the bodies of seven cranial vertebræ, which have each their superior and their inferior arch, including all the bones of the operculum, the cranium, and the face, in their composition. This number of vertebræ is the same as that of the segments which Straus thinks he can detect in the head of insects. So that each vertebra of the cranium of the most complex fishes is considered as being formed of a body with two pairs of elements above and two pairs below, which enumeration takes in every distinct element observed to be developed in the cranial vertebræ in the most complex forms of the head. Indeed it is only in the most complex structures that this is to be looked for, as I observed to you before in speaking of the elements of the annular segments of insects, where we have also to study the true nature of these elements in the most complex forms of the thoracic segments. But although all the elements of every bone are not required, and not developed in higher animals, the relations of those that are developed are not altered.

The cranial vertebræ here continue forwards in the same line with those of the rest of the column, and their elements are not united by serrated sutures. These cranial elements form laminæ, which are almost without diploe, and when they meet in the progress of ossification they overlop each other, and thus forms quamous sutures throughout the cranium. So that the whole of the bones of the head of fishes continue to grow equally with those of the rest of the body through life, and there is no difference of proportion between the cranium and face in the young, the adult, or the aged animal, as there is in those vertebrata where the cavity of the skull is filled by the brain, and corresponds in form and size with that organ. In fishes, the small brain, consisting of the olfactory tubercles, the hemispheres, the optic lobes, and the cerebellum, lies at the bottom of the cranial cavity, many times larger than that organ, and therefore the form and size of the brain which vary with the period of life, as in other animals, have here no relation to those of the skull. In the warm-blooded animals the great development of the cerebral centres not only fills the entire cavity of the skull, but so dilates and transforms the appearance of the superior cranial elements, that they lose all that vertebral form which we see so manifest in the fishes. The cup-like cavity of the back part of the basilar bone is sometimes found also at its anterior termination, where it joins the body of the sphenoid, and the same hollow cavity is repeated on the body of the sphenoid bone, as on the bodies of the vertebræ of the back part of the column. The great size of the occipital spine (O^*, 8), so important here for the attachment of the muscles of the spine, is proportioned to that of the spinous processes throughout the rest of the vertebræ, and the same spinous elevation is often continued over the whole cranium to the nose. The parietal bones are generally kept apart from each other in fishes, as in cetaceous mammalia, by the extension forwards of the occipital bone on the roof of the cranium, from the lineal direction of the head on the column. The temporal bones (12) have all their elements large and detached, and in the osseous fishes the petrous portion does not contain within it the internal ear, as it does in the cartilaginous species, and in the higher vertebrata. The frontal bones are of great size, as in most of the cold-blooded vertebrata, but it is among the warm-blooded animals that they acquire their arched form, to correspond with the great development of the hemispheres which they cover. The jugal bones, which in the blowing cetacea form a very slender arched boundary to the lower margin of the orbit, are here in the same situation and composed of a series of small detached elements, corresponding with the detached and moveable condition of all the elements of the bones of the face in fishes. This mobility is most remarkable in the palatine, the superior maxillary (18), and the intermaxillary bones (17), which allows this part of the face to be protruded, like a moveable proboscis. The analogy of these cephalic vertebræ to those behind, is further seen in their mode of connexion with the vertebral column. The occipital bone is united to the atlas, not by its two lateral condyloid parts, but, as in the other vertebræ, by the body or basilar part. There is a beautiful transition as we ascend through the vertebrated classes, from this condition of the vertebral column in fishes to that condition which we see in man, where the head has been shifted from the body of the first cranial vertebra to the lateral condyloid pieces; so that in mammalia it poises upon these two condyloid pieces, and has lost its connexion with the body of the bone, or its basilar part. There is a degradation of the development of the vertebral column at both of its extremities in all the vertebrated classes. In the higher classes of animals, and in man himself, we have the most perfect development in these cranial portions of the ver-

ebral column; but as we pass down hrough the sacrum, we gradually lose ome of the elements; as we pass along he coccyx, we lose several of these elements, and get the foramina of the vertebræ thrown open, as it were, till at length they are left with only the bodies of the vertebræ developed.

O*



The upper jaw-bone (18), in the osseous fishes, as you see in the skeleton of the perch (O*) runs transversely along the upper and fore part of the mouth, parallel with and behind the inter-maxillary bone. The superior jaw-bone in most fishes is extensively moveable upon the rest of the skull. The inter-maxillary bones (17) form the most anterior moveable part of the upper portion of the mouth, the part which in this lophius you observe covered with teeth, although there are no teeth here in the superior maxillaries. The two inter-maxillary bones are here greatly developed transversely; in higher animals we shall see them developing longitudinally, but not in the next class, for, in the amphibious class, we shall see numerous affinities to fishes, and that they still develop them transversely. These teeth in fishes cover all the bones of the mouth. They are placed everywhere around the interior of the mouth; we find that some fishes have teeth in the inter-maxillary bones, in the superior maxillary bones, and in the inferior maxillary bones; on the os hyoides, on the branchial arches, in the pharyngeal bones, on the palatine bones, and on the tongue itself; all these parts may be the seat of teeth. These teeth in fishes are not fixed in deep alveoli by a root or fang. The fang is almost never developed in fishes, nor in amphibia, nor in serpents. The fang is developed, and the teeth are fixed, in deep alveoli, where the jaw-bones are strong, where these bones are solidly articulated, and where the teeth require to possess the means of powerful resistance; therefore it is, that in the serpents, in the amphibious animals, and in the osseous fishes, you almost never find fangs of the teeth, or alveoli for their lodgment, and they are merely osseous spines without enamel. This feeble attachment then of the teeth corresponds with the imperfect consolidation of the individual bones, and of this part of the skeleton. I shall come to that again, when I speak of the osteology of the crocodiles, the gavials, and the alligators, which have the whole of the bones of the head solidly articulated, and have a covering of enamel and deep alveoli for their teeth. From the feeble attachment of the teeth in fishes, you might expect that they are liable to be lost in the various living movements of these animals. We find, accordingly, a beautiful provision for this rapid loss, in the formation of numerous successive series of teeth. Thus you observe in the jaws of the shark,—which are soft and cartilaginous, and therefore give feeble attachment to the teeth, although there is but one row erect at once, and ready for use,—there are, immediately beneath the soft membrane of the gums, numerous other rows of teeth ready to rise and occupy the place of those which are lost. You will generally observe that fishes have not a single row of teeth in their jaws like quadrupeds, but numerous rows, crowded together, often in the most irregular manner. And we often find a new set of teeth within the bases of the old.

Now from these parts of the skeleton of fishes, extending from the anterior part of the face to the last of the coccygeal vertebræ, there hang down numerous arches, very similar in their origin and relations, suspended from the column, and which tend more or less to impede the motions of those parts of the vertebral column to which they are attached. But you ob-

serve that fishes, like cetacea, have no fixed vertebra behind the occipital bone—all are moveable to the extremity of the tail. As the legs of fishes and the pelvis of cetacea are not firmly articulated to any part of the vertebral column, there could be no vertebræ fixed or anchylosed, to form a sacrum in these animals, and they thus possess great freedom of motion in this part, for striking the water to impel them forwards. The cetacea have large transverse processes of the coccygeal vertebræ for the muscles which raise and depress the tail, their ascending and descending motions being necessary, from their breathing by means of lungs. But in fishes, where the breathing is aquatic, or by means of branchiæ, there is no necessity for the ascending and descending motions, but only for motion in a horizontal line through the element which they breathe. Hence the transverse processes of their coccygeal vertebræ are removed from the sides of the vertebræ, where they would only impede motion, and are turned downwards to meet each other, and form an inferior canal for the great vessels, which in cetacea are protected in the same place by the development of inferior laminæ and spinous processes. Thus nature, ever fertile in resources, can vary the form or size of common elements of structure, to suit living habits and uses the most diversified, without ever being compelled to change entirely the plan which she has adopted for the construction of vast tribes of animals.

To-morrow I shall proceed to the other parts of the skeleton of fishes.

HOTEL DIEU, PARIS.

CLINICAL LECTURES ON SURGERY,

DELIVERED BY

BARON DUPUYTREN,

During the Session of 1833.

[Revised (before translation) by the Baron himself in the fasciculi of his "Leçons Orales de Clinique Chirurgicale," published periodically by G. Bailliere, Paris.]

LIGATURE OF THE EXTERNAL ILIAC FOR ANEURYSM OF THE FEMORAL ARTERY.—CASE OBSERVED THROUGH ELEVEN YEARS.

THE first disorders experienced by the patient Berger,* after the ligature of the artery, were evidently nervous; they had, in fact, appeared before, during the disease, and continued to complicate all the other accidents which supervened during its course. Berger had supported the operation without a complaint, but he felt some desire to vomit, and had a slight fainting fit after the dressing. He was placed in bed with the head elevated by pillows, the thighs and legs flexed on the pelvis, and the left leg was surrounded with bags of warm sand. Infusion of *Linden Leaf* and *Orange Flowers* was ordered for drink, and broth for nourishment. During the course of the day on which the operation was performed, he did not experience any numbness in the limb, the sensibility and motion of which were perfect; the heat was not diminished for a moment; on the contrary, it seemed to the patient to be elevated, but the hand could detect no difference of temperature; but the patient's countenance was altered, acute pain was constantly felt in the epigastric region, and there was constant eructation of wind. In the middle of the day he experienced a general heat over the body, the face became much coloured, and he was thirsty; pulse quick and hard. In the evening the epigastric region was tympanitic, and the anxiety of the patient extreme. We prescribed an infusion of *Cammomile Flowers* and *Anise*; dry frictions to the abdomen; and ordered the patient to be bled during the night, if any sign of cerebral or other congestion should set in. In the night, pain in the epigastric region, with the discharge of a great quantity of gas; no sleep.

On the 2nd day the sensibility and mobility of the limb still remained perfect; its heat seemed increased, on account of which the sand-bags were replaced by warm flannel. The epigastric pain continued violent, and the stomach was so distended with gas, that it could be traced through the abdominal parietes; the pulse was less developed than on the evening before; the countenance sunk, tongue dry, and covered with a dark crust, which also enveloped the teeth and lips. He was ordered a glyster, composed of two ounces of *Decoction of Tamarinds* in eight ounces of water, which was repeated, as the first produced no effect. This was soon discharged, bringing with it a little fecal matter, and determining the discharge of a good deal of wind, which relieved the patient for a short time; but the abdominal pain soon returned, being always accompanied with eructation of gas. In the middle of the day the face became extremely coloured, the pulse hard and frequent, and the epigastric pain extended to the hypochondrium. Twelve ounces of blood were abstracted from the arm, and emollient glysters, with vegetable lemonade for drink, were prescribed.

* See LANCET, last No., page 515.

This treatment calmed the pain a little, and procured a few hours sleep. In the evening the patient's ideas seemed troubled, and he did not preserve the least memory of what passed during the day; the epigastric region still continued painful, tense, and resonant to percussion; gas was constantly discharged by the mouth; the tongue was red and dry; the pulse hard and frequent. The patient was bled again in the middle of the night; lavement, and the introduction of a gum elastic tube into the anus, gave discharge to a great quantity of wind, but no fecal matter came away.

On the 3rd day the countenance of the patient expressed less pain; he was also less anxious; the pulse had lost its character of hardness and frequency; the tongue was less dry, the skin a little moist, and the region of the stomach less tense and painful. The lemonade was continued, and ten clysters were thrown up, containing each half an ounce of *Castor Oil*; they were retained, without causing any stool, but the urine was passed in abundance. In the evening the patient's state was more improved, and he slept for three hours on the following night.

On the 4th day the pulse was nearly natural, the tongue moist, and the epigastric pain less severe; but the discharge of gas still continued. The limb retained its natural heat, sensibility, and power of motion. We gave broth twice during the day, and continued the lemonade, clysters, and introduction of the sound into the anus; in the evening same state. The patient felt a little appetite, and got some broth; during the night he had several hours of sleep, but he was disturbed by dreams of a disagreeable nature.

On the 5th day the dressing was removed without causing any pain, to the astonishment of the patient, who expected to suffer cruelly. About a quarter of an inch from the external angle of the wound, we noticed a small dark spot, two lines broad, which was probably occasioned by the bandage. The aneurysmal tumour was without pulsation, and reduced to one-third of its original size; there was no pulse to be felt in the popliteal or posterior tibial arteries, yet we could feel that they contained a fluid. The slightest touch of the finger was felt on every point of the limb, and the heat, instead of being diminished, seemed to be elevated. The pain of the abdomen had nearly disappeared, but the eructation of wind persisted; the tongue remained still dry and red, and the pulse frequent. The patient coughed a little, and at each effort experienced considerable pain in the wound; this was dressed with pledgets of lint, supported by compresses and a triangular bandage; the broth and lemonade were continued. During the day the patient was somewhat troubled in his intellect and he passed an agitated night, with delirium. The clysters brought away a copious stool of dark hard matter, and the delirium ceased after this evacuation.

6th day. The tongue is brown and dry, and the pulse frequent. The wound was dressed in the same way as yesterday. We perceived a slight thrilling in the tumour. In the evening the patient appeared more calm, and enjoyed several hours of sleep.

7th day. Tongue still dry and red; pulse less frequent; no difficulty of respiration; no pain of chest or abdomen, except some uneasiness in the wound whenever the patient coughs; the limb is warm and sensible; the suppuration abundant, and of good quality; Seltzer water, with beer and broth, were prescribed; two clysters were thrown up during the day; these occasioned some slight colic, and were soon followed by the evacuation of a quantity of yellow liquid matter; three other similar stools were passed during the day; the patient felt some appetite, and had a few hours sleep during the night.

8th day. The skin was moist; countenance good; pulse calm, and tongue moist, though red; the sensibility, heat, and power of motion in the limb, continue natural. During the subsequent dressings, we frequently noticed that the tumour presented very sensible pulsations, both to the eye and the touch. During the course of the day, the patient passed several liquid yellow stools, had a quiet night, and from this time ceased to experience that painful sensation in the abdomen which commenced a few hours after the operation, and which, up to this moment, had almost completely deprived him of repose; the eructation also ceased to annoy him from this period.

9th day. During the dressing, we remarked on the left side of the abdomen, some lines above the wound, extremely strong pulsations, which seemed to depend on the iliac artery; the aneurysmal tumour also pulsated more strongly than usual; however, its size diminished sensibly every day; in order to support the patient's strength, he was ordered to take two spoonfuls of claret every evening and morning.

10th and 11th day. The patient experienced at intervals accessions of hiccup, which were not accompanied with any bad symptom, but were so frequently repeated as to interrupt his sleep; he had some appetite, and took soup and broth; three spoonfuls of claret were given after

the soup, and he took for drink beer and Seltzer water.

13th days. We observed to-day that the quantity of pus which came from the wound was chiefly furnished by a small sinus above its superior angle, on the inner side of the crista ilei; this was completely emptied by pressure from above downwards, and as the patient had some appetite, he was allowed a little aliment.

14th day. The pulsations in the direction of the iliac artery have ceased, but have appeared on the opposite side; the pulsations of the tumour have become irregular and intermittent; these intermissions last for several seconds, and as nothing analogous can be noticed in the other arteries, it is evident they depend on some local obstacle in the circulation.

15th day. The ligatures are loose, but have not come away. In the evening the patient was attacked with violent headach, and as he had not been to stool for several days, we ordered an emollient clyster, and a sinapism to the right foot; a few hours after the clyster was thrown up, the patient passed two copious stools, his headach was removed, and he passed a good night.

16th day. Both ligatures have come away.* As the patient's appetite has increased; we ordered for nourishment two cutlets, and continued the claret, beer, and Seltzer water.

23rd day. The angles of the wound commence to cicatrise, and several granulations which are too prominent are touched with nitrate of silver. We found some strie of blood mixed with the pus; and near nine o'clock some hemorrhage came on which soaked through the dressings; the quantity of blood lost was estimated at half a palette. When the dressings were removed the wound was carefully examined, but as the flow of blood ceased, the part whence it came could not be ascertained; the wound was accordingly dressed again as formerly.

24th day. The hemorrhage returned more abundantly than yesterday, and was accompanied with acute pain in the wound; the blood, which is clearly arterial, seems to come from the lower part of the wound. Compression exercised an inch above the wound had an effect in arresting the bleeding; but when applied below the wound it suspended the trickling, and gave us time to clear the wound of the clots which it contained. The wound was now covered with a little lint, and a graduated compress applied, supported by the circular elastic bandage already mentioned; the face of the patient was altered, and the eructation of wind had recommenced. The iliac artery was raised up on a canula and brought into view; when pressed on by the finger the pulsation in the tumour ceased; it was tied a second time, and for six days the pulsations did not return. Compression exercised upon this vessel had no effect upon the beating of the tumour; hence the blood which caused the pulsation must have come from some more distant source, and, in fact, when the abdominal aorta was compressed the pulsations ceased; the blood, therefore, came not from the end of the artery where it was tied, but from arteries between the ligature and the ventral aorta.

What vessel had re-established the circulation in this manner? The internal iliac, and perhaps the internal mammary. But by what trunk was the blood carried into the aneurysmal sac? Was it by the profunda femoris? The situation of this vessel behind the tumour prevented us from answering this question. Was it the epigastric? The double communication of this vessel with the internal mammary and obturator arteries is well known. This idea led us to examine with attention the passage of the epigastric artery; and it was not without astonishment that we felt excessive pulsation along the course of this vessel, even through the abdominal parietes, and particularly in the neighbourhood of the tumour; hence it appeared extremely probable, that the epigastric artery was the cause of the reappearance of pulsation in the tumour, and that, as sometimes happens after ligature of the primary carotid, the great facility of communication, instead of facilitating the cure, had reproduced the disease.

In the case before us this facility had the additional inconvenience of giving rise to hemorrhage which might be fatal. Every one is acquainted with the danger of secondary hemorrhage, and that it is infinitely more dangerous than primary bleeding; if abandoned to the efforts of nature, they either produce immediate death, or give rise to an adynamic affection, which is not less fatal. It was impossible to leave the patient in his present state of danger, but the difficulties of the case were numerous. Did the blood come from the superior or from the inferior

* Practitioners have for a long period attached much importance to ligatures of reserve; from this time I have never employed them in any case of aneurysm. The experiments I have made, demonstrate that they are more calculated to produce secondary hemorrhage than to prevent it; that they often cut through the artery before the ligature which has been drawn tight; and, finally, that they cannot arrest a secondary hemorrhage, as they act upon an inflamed portion of the artery, which has become, on that account, ready to yield on the least constriction.—*Lect.*

orifice of the artery? In the first case, as the ligature of reserve had come away for a long time, and the artery consequently retracted, it appeared almost impossible to tie it again. It seemed much more probable that the blood came from the lower orifice; but admitting this to be the case, how was it to be arrested? Should we tie this orifice above the tumour? To this there were many objections; it was excessively short, so short that it would have been almost impossible to place the ligature without implicating the sac; it was also enveloped in inflamed cellular tissue, and was itself most probably inflamed, giving rise to the apprehension that a ligature would cut through the vessel at once and bring on bleeding in a few hours. Finally, if the ligature happened to be placed below the origin of the epigastric artery, this vessel alone might keep up the hemorrhage by continuing to pour into the wound the blood which it received from the mammary or obturator arteries. Should we tie the femoral artery below the sac in order to prevent the reflux of blood to the tumour? Why, in the first place, it was very doubtful if this was the source of the bleeding, and in the second the ligature should be placed below the origin of the profunda femoris artery. Finally, should we open the aneurysmal tumour longitudinally, as in the operation by incision? But it was evident that we wanted a circumstance essential to the success of this operation, viz., the power of suspending the course of the blood in the limb. The blood continually thrown into the sac by the epigastric, and probably the femoral, arteries, would embarrass this operation and render it dangerous. Previous trials had indeed proved, that we could suspend for a short time the flow of blood into the lower extremities, by pressure exercised from left to right on the ventral aorta against the vertebral column; but besides that the contraction of the abdominal muscles excited by pain, the slightest motion of the patient, or the least hesitation on the part of the assistant, might suddenly render this means inefficacious. It appeared excessively difficult to tie the epigastric, the profunda, and even the femoral artery, close to the sac, without running the risk either of wounding some of those vessels or their branches.

These reflections induced me to renounce all idea of the ligature, and to employ compression, which, though a less certain mean, was still free from the objections to which the former was liable. But, in order to be efficacious, the pressure should fall on the precise point from which the blood was furnished to the sac. The great difficulty was to find this point, and in order to close it up, I renewed the trial of compression above and below the wound; in the first case the blood continued to flow; in the second it was constantly arrested: the hemorrhage, therefore, came from the superior orifice of the vessel, which was evidently the one to which our pressure should be applied, and as the force of the circulation was diminished considerably by the resistance of the arterial anastomosis, the chances of success were multiplied. Hemorrhage set in a third time about an hour and a half after the former, but it was slight, and ceased as soon as pressure was applied; in the course of an hour the pressure was suspended, and the flow of blood recurred at once; the same means were applied with the same effect, but this time the pressure caused a great deal of pain; the inferior edge of the wound was sunk in, while the superior edge projected half an inch beyond the pad of the bandage. The patient's state was critical.

Were not the extraordinary and unexpected return of pulsation in the tumour and the hemorrhage to be attributed to the same cause, viz. the facility with which the circulation was re-established below the ligature? To what other cause could we attribute the return of the pulsations on the sixth day, and the loss of blood which supervened eight days after the discharge of the ligature, and twenty-three days after the operation?

The compressive bandage was removed and the wound cleaned; three dark dense clots of blood were removed, which seemed enveloped by a membrane or cyst. At the moment of their extraction a rush of blood took place. The index-finger was at once placed in the bottom of the wound. The blood ceased to escape, but in order to prove more clearly from what part of the wound the blood came, pressure was suspended for a second, and the blood flowed from the inferior orifice of the vessel. Pledgets of lint powdered with resin had in the mean time been prepared, and one of these was placed in the bottom of the wound while the finger was withdrawn. This was fortunately accomplished without any loss of blood. Other pledgets were placed above the former, until the wound was exactly filled, and a strong thick compress of a triangular shape over all, which was supported by a bandage passing under the buttock. Although the bandage exercised a pressure accompanied with as much pain as was the truss formerly used, the patient bore it with much fortitude, as he now comprehended the danger of his position, and the necessity of submitting himself to the requisite

treatment. The leg and thigh were flexed on the pelvis, and retained in that position by a pillow under the ham. In the evening the countenance of the patient was good, the pulse natural, and the bleeding had not recurred.

On the 25th day we noticed that the blood dribbled along the thigh-strap, without having passed through the dressings; pledgets of lint were placed over this point, and supported by a new bandage; there was no numbness in the limb, which preserved its natural heat and sensibility, but the moral condition of the patient again became affected; his face changed, slight pain occurred in the epigastrium, and he passed much gas by the mouth. In the evening his mind was more tranquil, but he complained of the uncomfortable position in which he was placed, and of severe pain in the part; the eructation and epigastric pain had ceased, and he passed a quiet night.

26th day. A good deal of pus and blood was discharged between the skin and upper part of the wound. The parietes of the abdomen were slightly painful for some inches round the bandage; however, the patient had some appetite, and felt better. The broth was continued as before.

To the 29th day some pus continued to escape from the upper part of the wound, and as some pain was felt in the back of the pelvis, which arose most probably from the position of the patient, this part was covered with a diachylon plaster, and a pillow was placed under the buttock.

30th day. In the evening a fifth hemorrhage was produced by the continued movements of the patient, who did not find himself comfortably placed. The quantity of blood lost was about half a palette; this hemorrhage was stopped by a fresh application of lint, and a bandage to the lower angle of the wound. This was the last time that the patient lost any blood. He seemed to have gained fresh strength and courage. A glass of claret, and soup, were prescribed.

During the following day he complained much of a painful secretion in the upper part of the left thigh, produced no doubt by the bandage; but the apparatus was kept on to the 32nd day, when a portion of it was removed with great caution; the pus discharged did not show the least trace of blood, and the removal of part of the dressing gave such ease to the patient that he enjoyed five or six hours tranquil sleep. On the morning the rest of the external dressing was removed, and nothing left but the plugs which filled the wound; the edges of the latter, being red and excoriated, were covered with cerate, and a fresh dressing of lint, compresses, and a triangular bandage, were applied.

33rd day. The upper part of the thigh was red, swollen, and a little painful; the tongue was red and dry; the pulse frequent; and the patient felt thirsty. Lint wet with Goulard's lotion was placed on the thigh. During the night the patient was delirious, constantly in motion, and even wanted to remove his dressings. Fortunately no ill consequences followed this state of restlessness.

34th day. Five days after the last hemorrhage, and ten after the first, the whole of the lint was removed from the wound with great caution. The wound, which had the form of a hollow cone, furnished healthy-looking pus, which was absorbed carefully by small bits of lint. The dressing consisted of charpie, compresses, and a triangular bandage. The tension and pain of the thigh were augmented; the Goulard's lotion was continued, and the patient took, as before, broth, and lemonade. When the dressing was removed on this occasion, we were able to ascertain that all pulsation had ceased in the tumour, which was empty, and reduced to a cartilaginous sac. In the evening the volume of the thigh seemed diminished; but the pain was severe, the countenance was sunken, the pulse frequent, and the tongue red and dry. The patient was a little delirious, and experienced some eructations, with slight colicky pain. Though the patient had been constipated for several days, we were not inclined to order a lavement, lest in going to stool he might excite the hemorrhage.

35th day. The patient's state was better; the pain and swelling of the thigh considerably diminished; the pulse less frequent; the suppuration slight, and of good quality, and the limb warm; his appetite had returned. We ordered soup, broth, some claret, and warm cataplasms to the thigh.

36th day. The tumour of the thigh has become soft and flaccid; it may be touched without causing any pain. The middle and superior part presents a sense of deep-seated fluctuation. Was this fluctuation caused by the presence of pus, or by the rupture of the aneurysmal sac, giving rise to an effusion of blood? If the tumour were caused by pus, it was necessary to open it at once; but if by blood, an incision might give rise to fresh hemorrhage. The inflammatory symptoms which had preceded this collection of fluid, and their sudden remission the moment it was formed, decided me to plunge the point of a bistoury into the upper part of the thigh,

about ten inches below the aneurysmal tumour: at first only a few drops of fetid sanies flowed out; but by slight pressure we procured the discharge of a great quantity of the same matter, mixed with a little thick pus; a grooved sound was then introduced into the abscess, and the small opening enlarged with a bistoury. Moderate pressure gave issue to a great quantity of pus mixed with some striæ of blood. A bit of lint was placed on the orifice of the opening, and the thigh was covered with a large poultice. Decoction of bark, and wine, with water, were ordered. The wound was dressed twice a day; at each time slight pressure caused the discharge of a great quantity of pus.

30th day. Some remnant of tissue came away in the pus, amongst which we remarked pieces that had the texture and colour of nervous filaments.

39th day. The state of the patient is good; his strength keeps up, but he has little appetite. We ordered him a scruple of rhubarb in four doses.

40th day. As pressure does not evacuate the pus completely, the opening was enlarged, the limb demiflexed, and the knee elevated on a cushion above the level of the thigh. At this period the patient commenced to feel extremely severe pain on the outside of the knee, sometimes extending down to the head of the fibula and external ankle. The limb was wrapped in warm flannel, and the pain seemed to calm for a few days. The wound was now filled up, and its orifice contracted; the edges were in contact, the pus scanty, and the granulations gray and ragged. The patient has little appetite, and the pain of the knee and leg is so severe as to disturb his sleep constantly. An ounce of the syrup of diacodium procured better nights. During the following days the suppuration diminished in a remarkable manner, and the appetite became better. Every day the patient went to stool without the aid of clysters; but the nervous pains still continued, with this difference, that they now occupied the inner side of the knee.

From the 42nd to the 48th day, the convalescence seemed arrested in its progress; the patient was morose and greatly cast down. Various nervous accidents occurred, and gave rise to the apprehension of a fever of the worst character. A change of air, place, and nourishment, seemed indispensable. With this object he was removed to a house situated in one of the gayest quays of the metropolis, where the scene and constant bustle might distract his ideas. This change of scene and aliment had so rapid an influence on his convalescence, that in eight days all suppuration had ceased, and the wound was cicatrised. We commenced to raise the patient in bed for a few hours, and on the 60th day he was able to raise himself.

On the 64th day the opening of the abscess in the thigh was also nearly cicatrised, and an œdematous engorgement which surrounded it was dissipated by alcoholic lotions.

68th day. The patient could walk alone, and even leave the house for a short time, without experiencing any more inconvenience than a slight stiffness in the thigh. Thus,—after two months of nervous accidents, which were repeated under so many forms,—after the reappearance of pulsation in the tumour,—after the occurrence of repeated hemorrhage by the opening of the sac on the 25th day,—after the discharge of the old clots contained in the sac, and the formation of an abscess below, in the course of the femoral artery, and the continued discharge of pus in considerable quantities,—after the frequent threatenings of a nervous fever during the course of his convalescence, Berger was at length fortunate enough to obtain a cure which left nothing to be desired.

On the 7th of July 1819, three years after the operation, the patient was in the following state. The limb had the same size, shape, and nearly the same strength, as the other one; the heat, motility, and sensibility, were not in the least altered; the circulation was perfectly re-established, but without manifesting itself by any pulsation which was sensible to the finger, though the vessels seemed full and resisting. The patient was able to walk several leagues in continuation, and was daily employed at his usual occupation, without experiencing any fatigue. He had even made a journey of more than forty leagues without any accident. One only inconvenience remained as a consequence of the operation, viz., a weakness of the abdominal parietes at the point where they were divided, which compelled him to wear a bandage constantly.

On the 15th of January 1827, eleven years after the operation, Berger was in the most satisfactory state, and his cure had not been followed by any secondary accident, although he constantly exercised the laborious profession of a mason.

The details into which I have entered in the course of this important case, render it unnecessary to add here any reflections. I shall content myself with remarking, that these two operations sufficiently prove the immense resources we now possess in cases of aneurysm hitherto regarded as incurable.

PHRENOLOGICAL SOCIETY.

Monday, Nov. 16, 1833.

Dr. ELLIOTSON, President, in the Chair.

FIRST TRANSLATION OF THE WORKS OF GALL.

THE PRESIDENT stated, that, in addition to the other works of Dr. Spurzheim, just published at Boston in America, by the house of Marsh, Capen, and Lyon, with corrections made by the author immediately before his demise, he had received the "Physiognomy," with a biography of the author; and that the same house, which deserved so well of all phrenologists, had forwarded to him a prospectus of an edition of Gall's octavo work. This gave him (the President) no little pleasure, as he doubted whether twenty phrenologists in this country had studied the works of the great original himself. Almost all had obtained their information second-hand, through the writings of Dr. Spurzheim, or Mr. Combe, and possessed very imperfect ideas of Gall's stupendous discoveries and reflections. In Edinburgh, they, many years ago, began to translate Gall, but relinquished the undertaking for a most paradoxical reason—namely, "because the public were not yet fit for the works of the great founder," which not only contain all the principles of the science, but detail them in the most perspicuous, simple, and powerful manner—are full of endless and most decisive facts and interesting illustrations; and answer all sorts of objections that must occur to those who have been brought up in old prejudices, and who study phrenology for the first time; and all this with a degree of eloquence, and a beauty of style, to which none of his scholars, to which no other phrenological writer, even approaches. An old lady, a friend of him (the President), began the translation, and had almost completed it, when she stumbled on a passage which she fancied to be adverse to the Bible, and so threw all her MS. headlong into the fire. A zealous member of the Society also began the translation, but nothing had yet been heard of his progress. Some prospectuses of the American edition were now on the table. The translation would be made by Dr. Winslow Lewis, jun., comprised in 3 vols. 8vo, and sold for 10 dollars. The publishers were anxious that some London bookseller should take a certain number of copies for the London market, or that exertions should be made to procure English subscribers. The President added, that he himself would have great pleasure in receiving the names of persons, whether belonging to the Society or not, who might wish to subscribe.

DETECTION OF A CHARACTER FROM THE SKULL.

Mr. SYMES then read a communication which he had received from a friend, not a member of the Society, respecting the individual whose skull had been discoursed upon by Mr. Drew at the preceding meeting. (See LANCET, page 463.) The subject of the remarks was a lad residing at Bridgwater, only fourteen years of age, who murdered his mistress, of whom he had been supposed to be extremely fond. He had received great kindness from her, and, having borne an excellent character, was not at first suspected of the murder, although he had been absent ever since; and the less suspicion attached to him, because the husband bore a bad character, and was not on terms with his wife. The boy's countenance was one of the mildest and most innocent in appearance—one which no person could connect with an evil thought. The man, however, having proved an *alibi*, people directed their thoughts to the boy, who, it was now remembered, had been seen about the house not long before the murder. He was found at the house of a relative a few miles off, and when told of the circumstance expressed a calm sorrow, protested his innocence, and said his mistress had given him leave to visit his relatives. He was taken to the house, and evinced no particular emotion when he saw the body. Indeed, when desired to touch it, he kissed it. From various circumstances the jury convicted him in spite of his protestations of innocence, and it was only just before his execution that he confessed the crime. He stated that he had no motive for it—that he loved his mistress, and had never thought of injuring her, till, going into the room where she was sitting at the fire with her back to him, he, having a hatchet in his hand, suddenly thought how nicely he could kill her, and without a moment's consideration did so.

The PRESIDENT remarked that the case appeared to be one of those in which a certain propensity is suddenly and impetuously excited for a moment; hundreds of which are upon record, and few of which have occurred without the corresponding organ being very greatly developed. He conceived that Mr. Drew had acquitted himself satisfactorily in his account of the head, for that gentleman professed himself to be unable to assign any motive for the crime which had been

committed, and declared that the subject might have been a murderer, but could not have been one of those depraved wretches in whom the crime which brings them to an untimely end is but the last act of a bad life.

OBJECTIONS OF A DEMI-PHRENOLOGIST.

Mr. DREW then proceeded to read some remarks upon an article in a late number (153) of the *Journal Hebdomadaire*, the subject of which was the great meeting that took place in the Parisian Phrenological Society, on the anniversary of Gall's death. Many hundred persons were, we believe, present on this occasion, and great numbers could not obtain admission. Of Mr. Drew's paper we subjoin an analysis. The journalist began by admitting the magnitude of the assembly as a proof of the great progress phrenology had made in its relations with society since the preceding year, and of the future progress which it is destined to make; and by acknowledging that the science has an immediate bearing upon all that concerns our dearest interests, – the education and moral direction of children, morality, legislation, "penality," or responsibility. He allows, that there is no necessity for his attempting to establish one of the chief divisions,—which nearly all the world agree to admit,— that the intellectual faculties, properly so called, reside at the anterior part of the head, — that the affective faculties, the propensities, reside at the posterior part, — that the superior sentiments occupy the summit, and the bad passions the sides of the head. "One can conceive it possible," he continues, "by means of the observations at present collected to prove these principles; but to go beyond this—to localise each faculty in a circumvolution of the brain,—for a fact so wonderful to be admitted, it is necessary that it should be impossible to contest it." The question is simply this:—Are there sufficient facts positive and negative, in regard to any particular portion of the brain, considered the seat of a particular faculty? No one can deny that there are, if he makes himself acquainted with all that phrenologists adduce. The question is one of facts only, and the facts may be of various value in regard to different organs, and be estimated differently by different persons. There is nothing wonderful in the locality of a faculty, or wonderful in its being proved. We know enough of mankind to suppose that, though a point be proved, some will contest it, however impossible it may appear: and some localities and faculties may be proved, while others may but be *highly* probable, and others but *probable*. Upon an objection of the writer in the French journal, that phrenologists differ amongst themselves as to the primitive faculties, Mr. Drew remarks, of course, that this difference is inconsiderable, and unimportant to the grand principles of the science. On many points, chemists and mineralogists differ; but no one on that account denies that there are such sciences as chemistry and mineralogy. Mr. Drew points out the inconsistency of the writer in finding fault with Dr. Spurzheim for being so minute as to contend for organs of *form*, of *size*, of *weight*, and then himself (the journalist) talking of an organ of *assassination*, of *suicide*, of *patriotism*. The French author argues, that the proofs of phrenology ought to be so strong as to compel assent, and adds, that he supposes he shall be told that there are public demonstrations, collections, &c., containing every proof that can be desired. And so there are in regard—not to every organ—but to a number large enough to establish that there is such a science as phrenology. He fancies that a slight elevation in one head, and a slight elevation in another, will be declared to account for the acts, talents, and tendencies of their respective possessors. Upon this Mr. Drew coolly but justly remarks "This is absurd." In truth, it is vulgar ignorance,—the language of one who is utterly unacquainted with phrenology. No bump may exist upon a head, and yet that head must have its character. An elevation depends upon the difference in size of neighbouring parts, and when one is not relatively large or small, many may be large, and yet not one bump exist. Besides, moral character does not depend upon the existence of one organ, but upon the absolute and relative development of many, as Mr. Drew justly observes. The writer contends, that no arguments are valid, if the character of the individual is known; and urges the necessity of pronouncing character to the world from heads unknown to the phrenologist. Surely if the accordance of a known character and the developments of the skull agree, that is proof enough, provided the cases are numerous and without exception. The other mode is more astonishing to the ignorant, but not more satisfactory to the philosophic mind. As to the desirableness of it, the writer may be told that it has been done thousands of times, and will be done at any time by a good phrenologist, with the completest accuracy; though we know that some charlatans give false characters, and bring into disgrace the science which they have learned but imperfectly. The writer fancies that phrenologists easily

explain actions by a single faculty, though the action may proceed from very different motives. For instance, "a phrenologist," he says, "wishing to find the organ of *suicide* in a man who had killed himself, they at once see in him the organ of *firmness*; but as suicide sometimes results from cowardice, in other instances phrenologists find no organ of *firmness*." "At another time it is the development of the organ of *love*, *ambition*, or *pride*." Now let us consider what *ought* to be the case. There can be no organ for *suicide*. God did not endow us with a natural universal primitive propensity to put an end to ourselves. If the act be the result of complicated propensities and of different feelings, and arise from different motives in different instances, the development of the head *ought* to differ in different cases, though it should agree with the character of the person. The writer tries to be witty on the case of a French cook, who, as there is no organ of *cookery*, was found to have the organ of *architecture* or *constructiveness* large. So, certainly, he might, though cookery was his vocation. Sir Walter Scott is known only as a literary man, remarks Mr. Drew, yet the organ of *constructiveness* was large in him. Now we happen to know that a strong inclination of Sir Walter was to construction. He was never happier than when among machinery.

WESTMINSTER MEDICAL SOCIETY.

[The following is the portion of our report of the meeting of the 21st of Dec., Mr. Pettigrew in the chair, which want of space compelled us to omit last week.]

At the close of the remarks made by Dr. Johnson, the Chairman mentioned a case, which he believed to be unique, in which the hair of a young lady from having previously been red became a very dark brown, almost a black, after an attack of small-pox, her eyebrows also changing to black, her complexion still retaining all the fairness which is usual in persons whose hair is red. An animated discussion then ensued on some cases of stricture of the œsophagus, related by Dr. Johnson, accompanied by sympathetic pain at the cardiac orifice of the stomach. After some remarks thereon,

Dr. Epps took the opportunity of requesting that the Secretary might read the regulation relative to the "taking the sense of the Society" on motions. The President assented, but postponed compliance until the close of the evening, when Dr. Epps had ready, and proposed, the notice published in our last. He did not (he said) wish to-night to discuss the merits of the proceedings referred to, but simply to give the present intimation, that the sense of the Society might be fully expressed at its meeting on the 4th of January, on what he considered to be a practice fraught with injurious and absurd effects, and in its late operation illegally used. The proposition was supported by Dr. Johnson and other gentlemen, and the Chairman proceeded to put the notice as a motion, when that was opposed by Mr. Chinnock, Mr. Hunt, and other members, on the ground that there was no occasion to take the opinion of the Society on a *notice*.—The Chairman, however, persisted, and then Dr. Gregory rose to oppose the "motion" if the notifier could not assure him that it had only a *prospective* view. A *retrospect* he would not sanction. — Upon this Dr. Johnson observed that Dr. Gregory might well be averse to retrospections, as he was the first this session to break a law which, last session, he (Dr. Gregory) had himself introduced. If the late proceedings were illegal, why object to a new trial? An illegal step surely ought to be retrod. (*Hear, hear.*)

Dr. Epps said that though no member had a right to ask what were his (Dr. Epps's) intentions (*hear*), he would state that if the Society on the 4th of January should consider the late proceedings to have been illegal, he (Dr. Epps) would move that those proceedings be annulled. —The sense of the meeting was then taken on the notice, when not a single hand was held up against it.

The Society was subsequently adjourned to the 4th of January, 1834 (this day).

LONDON MEDICAL SOCIETY.

The following is the petition which has been framed by the Committee of the above Society, with a view to its consideration by a general meeting of that body. It would not appear, from this document, that the subjects treated of had been either well digested or well arranged. Certainly the petition is not what it ought to have been.

"The humble Petition of the President and Fellows of the Medical Society of London, showeth:—

"1. That in the opinion of your petitioners, the education for the medical profession imperatively calls for legislative interference.

"2. That while it must be admitted that a knowledge of the various branches of medical science is essential to enable an individual to practise either medicine or surgery; and notwithstanding those branches constitute, and are, in fact, one great national science, the instruction in which should be uniform; your petitioners regret to observe that there exist in this United Kingdom more than ten Colleges, Corporations, or Faculties, each of which enforces a system of education peculiar to itself, tending, in some instances, not so much to the advancement of science, and the preservation of the public health, as the acquirement of personal emolument, honours, or other advantages, by a select few.

"3. Your petitioners further are of opinion that the existing classification of practitioners not only is unsuitable to the present improved state of medical science and public opinion; but that it seriously tends to prevent that harmony and unanimity which should be characteristics of a liberal profession.

"4. Your petitioners likewise respectfully direct the serious attention of your honourable House to the glaring inconsistency, the dangerous practice, of permitting even the most illiterate empiric, the druggist, or his assistant, to prescribe for diseases, or compound medicines, without an adequate knowledge of those diseases, or the properties of medicines; and that, while the most learned physician or surgeon is prevented, by the existing regulations of the Apothecaries Company, unless he be a member of the same, from preparing those remedies it is his province to prescribe.

"5. Your petitioners could instance many other facts, equally prejudicial and dangerous to the public health, alike injurious and derogatory to the medical profession; but they rest satisfied that any further exposition is at present unnecessary.

"6. In conclusion, your petitioners implore that your honourable House will forthwith institute an inquiry into the truth of these allegations, as well as into the general state of the education and practice of the medical profession.

"And your petitioners will ever pray, &c."

The meeting at which this petition is to be taken into consideration, is appointed to be held on Tuesday evening, January the 7th.

THE LANCET.

London, Saturday, January 4, 1834.

"Of two hundred LICENTIATE PHYSICIANS, one thousand SURGEONS, and more than two thousand APOTHECARIES, all engaged in the practice of physic in London, the FIRST TWO HUNDRED, only (i. e. the LICENTIATE PHYSICIANS), are OSTENSIBLY QUALIFIED BY APPROPRIATE STUDIES AND EXAMINATIONS."—*Roderick Macleod's "Mock" Journal*, Dec. 21st, 1833.

"I would not dictate to parliament. I approve of the institution of ONE FACULTY, but I do not think that this is the PROPER TIME to petition for it."—*Several Speakers in the Medical Societies.*

The discussion of the motion which stands first on the notice paper of the *Westminster Medical Society*, for Saturday evening next, will, we expect, be conducted with some degree of warmth, and lead, possibly, to a few disclosures which will convey to the medical public some criterion for estimating the characters of certain members of the medical conservative clique.

It is not for us to enter into any inquiry relative to the legality of the proceedings of the Society. It is not for us to call in question the honesty of the GREGORIANS, but we are called upon, in the discharge of our duty as independent journalists, zealously engaged in supporting just principles of medical government, to direct the attention of the profession to the quotations which are placed at the head of this article.

In the first it is announced that out of upwards of three thousand medical practitioners residing in this metropolis, there are only TWO HUNDRED who are QUALIFIED, by APPROPRIATE STUDIES AND EXAMINATIONS, to be entrusted with the care of sick persons.

This allegation either contains, or it does not contain, an opinion *bona fide* held by the GREGORIANS.

If we take the first position, we are left in no state of doubt with respect to the privileges which that party would confer on the mass of medical practitioners.

If we take the second position, and thus disallow the first, we are forced to conclude that the GREGORIANS would not hesitate to calumniate, misrepresent, and libel, the vast majority of English, Irish, and Scotch practitioners in medicine, in order to obtain for themselves valuable exclusive privileges.

Under such circumstances, can it be possible that physicians, surgeons, and apothecaries, will remain quiescent beneath this atrocious ban of the clique? Can it be possible that the legally-qualified members of the three branches of the profession belonging to the English, Scotch, and Irish Universities, Colleges, and Companies, will suffer themselves to be thus vilified, scandalized, and insulted, with impunity? Can it be possible that thousands of men of talent, consequence, and influence in society, will permit their reputation to be thus wrested from them, their characters to be thus blackened, their attainments to be thus belied, without rising in a body to denounce their calumniators, and, by asserting their professional and legal rights, exhibit at once the insignificance, worthlessness, and imbecility, of their traducers?

The opponents of medical reform are now visible, and, by a most fortunate accident, are rendered incapable of exercising further concealment of their purposes.

Their hostility to the institution of a liberal system of medical government is as malignant as it is narrow-minded and violent. In *intrigue* lies the whole of their strength, but it is only from the supineness of the profession that they can command the slightest influence either in or out of parliament. How happens it that of the thirty-one who voted against the motion for the institution of a FACULTY OF MEDICINE, not a single individual, when the subject was discussed on the 7th ult., made any statement, or employed one argument, to prove either the injurious tendency or the inexpediency of adopting the motion? Some of the thirty-one were advocates of the FACULTY, but disapproved of bringing on the motion at this particular juncture. "It was not the proper time for considering such a question."

That there are gentlemen who *seriously*, who *conscientiously*, believe that an occasion far more appropriate may occur for entering on the proposal to establish a FACULTY, is a circumstance the truth of which we are not at all disposed to question. But that there are others who dispute the propriety of petitioning Parliament for the institution of three FACULTIES OF MEDICINE—one for each of the great capitals—at the time that the Legislature is besought to institute an inquiry into the state of medical law and abuses, is perfectly obvious. It is not always convenient or agreeable to discuss a question *on its merits*. Subterfuge is the common weapon of meanness, hypocrisy, and cowardice. An enemy that cannot be met and slain openly, must, in conformity with the system of the GREGORIANS, be assassinated at midnight. One false friend renders a man more dangerous than ten avowed opponents. A few of the mock-reformers, by assuming the garb and manly bearing of their adversaries, in all probability hoped and expected that they should be enabled to strangle the infant Hercules—REFORM—while bestowing on it their pretended caresses. "This is not "the time to petition Parliament for ONE "FACULTY." And why not? Because *delay* may prove more fatal to the question than open hostility.

Let us, however, assume that the advo-

cates of *postponement* are sincere in entertaining the opinion that a "fitter time" may occur for petitioning the House of Commons for the institution of THREE FACULTIES. What, then, is the present state of the question?

The members of the medical profession belonging to the medical corporations of the British empire, not having, up to the year 1833, been regulated by judicious laws, but having been doomed to undergo every conceivable description of inconvenience and persecution,—having been degraded in practice by the conduct of ignorant quacks,—having, in hundreds of instances, been insufficiently educated by incompetent teachers,—having been subjected to the tyranny and exactions of rapacious, monopolizing, self-perpetuating corporations,—the members of the medical profession, we repeat, having been subjected to these and numerous other evils, up to the year 1833, are then told that it is their business, at the commencement of the year 1834, to petition the Legislature for an inquiry into those enormities, but that on no account must they weaken the prayer of their petition by intimating to the Legislature that they are endowed with sufficient capacity to construct a remedy for their grievances!

A brief reference to the history of events in modern times, will prove very clearly, that in neglecting to explain to Parliament the object which induces us to petition for inquiry, we not only fabricate stumbling-blocks to ensure our own downfall, but are the first to act hostilely towards our own immediate views and interests. There are members of the profession old enough to recollect, that the question of reform of Parliament was discussed in the House of Commons annually for upwards of thirty-five years, before a change was effected in the representation of the people in the lower branch of the Legislature; and, during nearly the whole of that period, what was the conduct of the people with regard to petitioning, and what were the tactics of the opponents of change? The people at first earnestly prayed for "Reform," without entering into any specific statement of the precise change which they required. The demand was for "Reform." Sometimes, however, one set of petitioners prayed for parliaments of five years duration, another set required triennial Parliaments, another biennial, and numerous petitioners boldly claimed the right of electing their representatives annually. In various instances, and from year to year, references were made, in petitions to Parliament, to the persons who ought to be empowered to exercise the elective franchise. In some instances it was sought to restrict the right to ten-pound freeholders; in others to five pounds, to two pounds, to leaseholders of a hundred-a-year rental, to occupiers of fifty, twenty, and ten pounds annual value. Thus did the petitions exhibit the greatest possible diversity of opinion, regarding the change of the law which was deemed essential to the due representation of the people in Parliament.

Taking advantage of these glaring differences of opinion, and these adverse statements of fact, so unwisely promulgated by the petitioners, the anti-reformers invariably triumphed over the just claims of men who only prayed for their rights, by exclaiming,—"There is no act-"ing upon these petitions. The Reform-"ers are all demanding change, but they "themselves are incapable of explaining "what that change ought to be! If they "cannot agree on any one proposition for "improving the law of election, how can "they expect that their opponent's views "will have the effect of producing a con-"cordance of opinion in the House of "Commons? Let the Reformers agree "among themselves, and make a specific

" demand, and we will then, as specifically, " deal with the prayer of their petition."

Ultimately, the reformers, grown wise by experience, and finding that an indiscriminate adherence to opposite opinions and discordant views was the only obstacle to their success, prudently determined on the rejection of minor differences, and the voice of the nation shook the very walls of Parliament, in demanding the enactment of the REFORM BILL of 1830. When the petitioners became united, and pointed to a specific remedy for their grievances, the opponents of all reform were at once rendered conspicuous and ludicrous, from their weakness and the paucity of their numbers.

Such is the instructive history of the events which led to an important change in the representation of the people in Parliament, and we are not of those who wholly condemn the Tories for stoutly resisting demands which were signalized by such discrepancies of opinion.

Let us suppose, then, that petitions for "*medical* reform" flow into the House of Commons from all parts of the empire—petitions for "medical *reform*," and reform *merely*,—for surely it is just as arrogant to petition the house *for the appointment of a Committee of Inquiry*, as it is to petition it *for the institution of a Faculty*.

Well. On the introduction of those petitions, up will rise, with breathless haste, fifty "Tower-hamlet" members, and thus they may chatter:—

" What, *what*, do the petitioners want? " what *do* they want? what do they *want*? " The House is occupied with nothing " but these rhubarb-and-jalap subjects. " If I ask a medical man to prescribe for " me, the thought of a guinea at once " suggests a remedy for *my* malady; but " *here*, these physicians and surgeons, and " surgeons and physicians, and apothe- " caries and surgeons, cannot lay down " rules for *their own government*! What do " they want? What is the use of our in- " quiries if the petitioners, who have " already had the advantage of so many " years of experience in inquiry, cannot " themselves explain the construction of " those laws which they demand for the " regulation of medical education and " practice? What do they *want*, Mr. " Speaker; what *do* they want? Isn't the " physician the physician, and the surgeon " the surgeon, and the apothecary the " apothecary? Is'nt the surgeon the sur- " geon, the apothecary the apothecary, " and the physician the physician? Is'nt " the apothecary the apothecary, the phy- " sician the physician, and the surgeon the " surgeon? *What do they want*, sir? Un- " til they learn to speak less vaguely, we " must oppose the motion for the appoint- " ment of a committee of inquiry, as a mea- " sure which will lead to useless incon- " venience and expense."

The advocates of a " committee,"—thus thrown into a weak and disagreeable position, — would endeavour to extricate themselves from the dilemma by alleging " that the great body of medical practi- " tioners did not in *reality* disagree in " their professional consultation, with re- " gard to the legislatorial remedy, but " that, *out of respect to Parliament*, no " precise allusion had been made to the " terms of a Bill to be framed for their " relief;—that everything beyond *inquiry* " was left to the *wisdom of Parliament*," —when, doubtless, the most spirited of their opponents would exclaim,—" that if " men of education and character, engaged " in discharging the duties of an honour- " able profession, are so considerately re- " spectful as not to explain to their own " representatives what they conceive to " be the most efficient mode of remov- " ing odious and intolerable burdens, they " are not entitled to relief, but should " be left to acquire additional knowledge " from the experience to be derived from

"an augmentation of their misfortunes." What body of petitioners, we ask, ever obtained too large a share of justice by petitioning the legislature for only that portion which their injuries demanded? Can there, indeed, be a greater insult to the legislature than to infer that a just law would be altogether withheld, because a body of independent men, in the unquestioned discharge of their rights, honestly stated that the enactment of a certain law would prove a benefit to themselves and society? That the luke-warm supporters of three FACULTIES OF MEDICINE,—that the opponents of three FACULTIES OF MEDICINE,—should object to petition Parliament in direct terms for the establishment of such institutions, is natural enough, when considered abstractedly; but for the *advocates* of the FACULTIES, however indifferent they may be to the cause, to petition for those national institutions, on the ground that it would be arrogant towards the legislature, while the self-same persons hesitate not to solicit the House of Commons not only to institute an inquiry, but to conduct an investigation in a particular and defined form, presents such a strange and inconsistent course of conduct, that no explanation of it can be afforded, even by an appeal to the doctrine of chances. If it be arrogant to pray for the institution of three national FACULTIES OF MEDICINE, why is it not arrogant to pray for a committee to inquire into the character and extent of medical abuses? In short, why is a committee of inquiry appointed at all, if not with a view to the *consolidation* and *equalization* of the interests and rights of medical practitioners?

And how, we ask, are these great objects to be accomplished, except by the institution of a tri-partite FACULTY OF MEDICINE, and the consequent abrogation of the contradictory charters under which the present corporations exercise their functions? The members of the profession hear, indeed, and find by the secret voting in the *Westminster Medical Society*, that there at least thirty-one opponents of an upright, honourable, system of medical government. Still, it is too much to expect that a large number of sensible men will be driven from their determination to adopt a correct line of policy, merely because there are individuals in their ranks who manifest an adverse disposition. A display of feeling by the few cannot be equal to the task of achieving a victory over the reason of the many. We want *arguments* in proof of the impolicy of founding an uniform scheme of medical government. And in this state of destitution we are likely to remain; for not one argument has yet been advanced, to show either that the community or the profession would suffer, in any one respect, from allowing all qualified medical practitioners to be designated by one title; or that the members of the profession residing and practising in England, Ireland, and Scotland, should, under the sanction of a statute of the realm, be protected in the exercise of similar professional rights, and be permitted fully to enjoy a strict equality of immunities.

In reviewing, then, the late proceedings of the *Westminster Medical Society*, we would have the intelligent and independent members of that body to bear in mind that the motion for a tri-partite FACULTY, was only opposed by thirteen individuals in an assembly of nearly three hundred gentlemen, while in a meeting amounting to about seventy persons, thirty-one members voted *secretly* against it, although previously it had been openly sanctioned by seven or eight times that number of medical practitioners. Whether, therefore, the proceedings be reversed or not, is a matter of little importance as concerns the great cause of medical reform, but it is of paramount consequence, in relation to the character, the consist-

ency, and the intelligence of the Society itself. Already has the sneer of contempt been directed against the members of that body, because they were so exceedingly "intelligent" as not to confirm by the ballot, a proposition for promoting their own interests and reputation. We trust, then, that the paltry manœuvre of the GREGORIANS will be exposed, and its object signally and finally defeated. At the same time it must be confessed, that although it is desirable that the medical societies of the metropolis and elsewhere should pronounce an unequivocal opinion in favour of the institution of a tripartite FACULTY OF MEDICINE, yet the interests of science and the welfare of the community concur in imperiously demanding that the subject should be considered by an AGGREGATE MEETING of the medical practitioners of the British empire.

Finally. If the legal trammels on medical men be incapable of provoking them to action, let them remember the atrocious calumny which is promulgated by MACLEOD and his party in the following sentence:—

"Of two hundred LICENTIATE PHYSICIANS, one thousand SURGEONS, and more than two thousand APOTHECARIES, all engaged in the practice of physic in London, the FIRST TWO HUNDRED, only (i. e. the LICENTIATE PHYSICIANS), are OSTENSIBLY QUALIFIED BY APPROPRIATE STUDIES AND EXAMINATIONS."

We observe in the report of the proceedings of the *Phrenological Society*, that Dr. ELLIOTSON has announced that a translation of the work of the celebrated GALL has been undertaken by an American Physician. Hitherto *others* have spoken for Dr. GALL in the language of this country, but if the support of scientific men be given as it ought to the labours of Dr. LEWIS, the founder of phrenology will henceforth be heard speaking for himself, and satisfied are we, that his admirers will increase in exact ratio with the number who may undertake and accomplish an investigation of his work.

REARDON'S CASE.—The publisher of this journal having attended at the *Royal Dispensary for Diseases of the Ear*, and heard OWEN REARDON'S statement, in the presence of the officers of that establishment, reports to us, that he considers that Owen Reardon was not dismissed until after he had been guilty of marked misconduct. This opinion receives confirmation from the fact, that the governor of the dispensary by whom Reardon was recommended, was obliged to dismiss him, peremptorily, from his counting-house, when Reardon went there for the purpose of making a complaint against the dispensary. We believe that Reardon was actuated in his complaint by no improper motive, but that from his deafness he misapprehended some of the remarks which were addressed to him by the officers of the dispensary.

NEW REGULATIONS

TO BE OBSERVED BY CANDIDATES FOR THE

DEGREE IN MEDICINE

IN THE

UNIVERSITY OF OXFORD.

HAVING been furnished, through the kind attention of Dr. JAMES ADEY OGLE, Clinical and Aldrichian Professor of Medicine in the University of Oxford, with a copy of the new statutes which passed the House of Convocation on the 2nd instant, respecting the "time to be spent and the exercises to be performed" by candidates for the degrees of "Bachelor" and "Doctor in Medicine" in the above University, we embrace the earliest opportunity of presenting the substance of the statutes to the notice of our readers. We

prefer publishing an analysis of the statutes to inserting a literal translation of them, as that form allows us to introduce a few particulars illustrative of certain of the University regulations, a knowledge of which, on the part of the profession, appears to have been presupposed by the House of Convocation. The following is the preamble:—

"Since the exercises for the degree in the Faculty of Medicine to be performed in the University of Oxford by no means suit the present times, it hath pleased the University to abrogate the following statutes, viz. Tit. Sect. v. gratiarum formulæ. Tit. ix. Sect. iii. § 4, juramenti forma. Tit. ix. Sect. vi. § 2. et Tit. ix. Sect. ix. § 4, § 5, § 6,—and to substitute in their place the following statutes."

The statutes then ordain the subjoined regulations under the several heads attached to the paragraphs:—

I. *Number of Years.*—All candidates for the degree of "Bachelor in Medicine," are still required not only to undergo (like Candidates for degrees in "Law" and "Arts") two public examinations in the schools, in the second (or third) and fourth years after their matriculation, in two Greek and two Latin authors, at the least; in Logic, or the first three books of "Euclid's Elements;" and in Latin Composition; but Candidates are also to be of seven years' (i. e. 28 terms) standing in the University.

II. *Examination for the Degree of Bachelor in Medicine.*—There are to be three Public Examiners in Medicine, viz. the Regius Professor of Medicine, and two other Doctors in Medicine of the University of Oxford, which Examiners are to be nominated by the Vice-Chancellor at each examination, and to be approved of by the House of Convocation.

III. *Time, Place, and Manner of Examination.*—The examination is to take place in the second week of full Trinity Term. The subjects of examination are, the Theory and Practice of *Medicine*, *Anatomy*, *Physiology*, *Pathology*, and *Materia Medica*, *Chemistry*, and *Botany*; and the following authors:—*Hippocrates*, *Aretæus*, *Galen*, and *Celsus*.

The examination (which may be conducted in English or Latin, and is to be commenced and terminated without the interval of a day) may be carried on *viva voce*, or in writing. All the Examiners must be present during the *viva voce* examination; but during the written examination, one only of them need be present. Any rejected candidate may offer himself at the next examination, to be held in the Trinity Term in the following year.

All Masters and Bachelors of Arts, Bachelors, Students in Civil Law, and other Non-Graduates (Students in Medicine), who may have passed the last examination for their degree, and are of four years' standing in the University, are allowed to be present at this examination. Every candidate for this examination is required to give notice of his intention at least fourteen days before the week appointed for holding the examination (i. e. the second week in full Trinity Term); and is to deliver to the Regius Professor certificates of attendance upon some established school of surgery, lectures, &c.

IV. *Remuneration of Examiners.*—Each candidate is required to pay 6*l.* to the Regius Professor.

V. and VI. *Time to be spent, and Exercises to be performed, for the Degree of "Doctor in Medicine."*—No one can take the degree of "Doctor in Medicine," until he shall have completed a period of three years from the time of his admission to the degree of "Bachelor in Medicine," and shall have publicly recited, within the precinct of the schools, before the Regius Professor of Medicine, a dissertation written by himself upon some medical subject approved of by the professor.

Hitherto Bachelors in Medicine have been permitted a vote in convocation by right only of their degree of Master of Arts; but as, by these new statutes, Bachelors in Medicine need not necessarily proceed through "Arts" at all, they are permitted to enjoy the same privilege of voting by the new statutes, as if they had taken the degree of "Masters of Arts."

VII. *Incorporation of Graduates and Students in Medicine.*—Bachelors and Students in Medicine of other universities, who wish to be incorporated into the University of Oxford, are required to exhibit their testi-

monials to the Vice-Chancellor, that it may appear whether all exercises required in their respective universities have been performed, and the requisite number of terms have been kept. [Then follow *Tit.* ix. *Sect.* ix., containing special forms of graces belonging to each degree.]

VII. *Qualification of those who are to be Licensed to practise in Medicine.*—Every Doctor in Medicine, after his inauguration or admission, may lawfully practise in every branch of medicine; but no one may lawfully practise medicine in Oxford, unless he shall have taken the degree of "Bachelor in Medicine," and been admitted to practise, according to the usual form, by the Vice-Chancellor, or his Commissary, and the congregation of Regent Masters of Arts. No one may practise surgery within the precinct of the University, unless he shall have obtained a license from the Chancellor, or Vice-Chancellor, upon pain of being deprived of the privileges of the University; and if he persist in acting in opposition to the statute, he will be proceeded against according to the laws of the University.

Sect. v. and vi., *Tit.* ix., contain the form to be observed in seeking a license to practise in medicine, and the form of letters testimonial to be presented on that occasion.

From the construction of these regulations, our readers may opine, that the heads of the University of Oxford are not anxious to augment the number of Graduates in medicine at the colleges of that city.

INTERCEPTED LETTER.

[ON THE DUTIES OF A LONDON PHYSICIAN.—ED. L.]

"MY DEAR YOUNG FRIEND,—It is not surprising that you have written to me on the subject of the qualifications you should possess to practise in the best possible manner as a physician in London. Not only have I practised for nearly *forty years*, but I have done so most successfully. I have coined large sums of money; I have lived luxuriously, and yet I mean to die rich. I have presided for many years in the ———, and, above all, I have been a great court physician during the reigns of three successive monarchs. I can, therefore, with no small degree of confidence, point out those qualifications which are necessary to secure your success in this metropolis, whilst I shall also have much pleasure in explaining to you errors which have led to the ruin of many.

"The great measure of reputation and success of a physician, and the point which you ought always to have before you, is *fortune*. Often have I heard Sir WALTER FARQUHAR, a wily and successful Scot, repeat the advice which he received before he left his native land, and I cannot too strongly impress it on your youthful mind. 'Make money, Walter—make money, and make it *honestly* if you can, but still make money.'

"Let me first offer a few remarks on the necessary endowments of your mind. Your residence at Oxford, however idle you may have been, has necessarily ensured your *reputation* as a classical scholar. However briskly the 'march of intellect' has advanced of late years, yet there is a charm in reading a *Greek* or a *Latin* book at *Oxford* or *Cambridge*, which a man cannot enjoy *anywhere else*. This I have always strenuously supported. The superficiality of your knowledge of the *mathematical sciences* is of no consequence, and your ability to repeat, it matters not whether very accurately or otherwise, a few passages from Homer and Virgil, will give you more the character of being a 'Learned Doctor,' than an acquaintance, however minute, with the whole six books of Euclid.

"The knowledge of *drawing* and *music* which you possess will require a good deal of nice management. They are the accomplishments of a gentleman, but it will amazingly injure your character if you are seen looking at or admiring a Venus of Titian, or commenting on some delightful passage in an opera of Rossini, instead of listening to the verbose narrative of a dyspeptic countess.

"It will be essential for you to take a decided line in your *religious* conduct. There are physicians here who have got on well by joining different religious sects, but by far the best class with whom you can associate—because they are the most numerous—are those of our established church. My connexion with the high-church dignitaries has given a classical and moral colouring to my own professional character, which I could have derived from no other source, and which has also been a means of great emolument to me. Just recollect the admirable impression which the attendance of a few bishops created at our meetings at Pall-Mall East, and the imposing character which their names have given to King's

College. Get introduced to as many of the clergy of the established church as you possibly can.

"You should be exceedingly cautious in your *political* creed, and whatever you may *think*, never commit yourself to any political party. It is wise to lean always to the side of power, and to worship the rising sun. I have myself made it a rule to appear to support as warmly Lord Brougham and the Whig Cabinet, as ever I did the Duke of Wellington and his 'cabinet of half-pay officers,' as Sir William Knighton used to call them. My condolo-congratulatory letters may certainly be quoted as an instance of the inconvenience which may unhappily result from this line of policy, but the denouement was a mere accident, and by a little manœuvring I soon freed myself from the charge of inconsistency.

"From the length of time you have devoted yourself to classical learning at Oxford, and the total disregard of, and indeed want of opportunity to study, *medicine* at that University, you may find it necessary to attend some elementary courses of lectures during the first years of your residence in London. That can be easily managed for you in a quiet way, so that whilst you appear to the world established as a practitioner, you may, in fact, cultivate those branches of medical science, which your attention to Greek and Latin has necessarily precluded. An exceedingly slender knowledge of *anatomy* is quite sufficient for a London physician. I do not believe that there are six Fellows in the College, who, if put on their trial, could demonstrate and dissect with their own hands, the muscles, bloodvessels, and nerves, of a cubic inch of any part of the body. As to morbid anatomy it is a perfect farce, and I always myself considered Baillie's work highly prejudicial to the practice of physic, and there are many of the most learned of our Fellows of the same opinion. Baillie no doubt succeeded by creating an impression by means of his knowledge of anatomy, and by an apparently minute examination of his patients, male or female, feeling them all over, and making them think that he was wonderfully scientific, and it was with him arose the title of 'Anatomical Physician.' But to convince you how much we despise a knowledge of anatomy, and all that belongs to it, in our College, I may state, that Dr. Baillie's preparations there deposited are unheeded by almost every Fellow of the establishment, and the numberless engravings which he left have been lying there since his death as waste paper.

"You ought diligently to obtain copies of the favourite *prescriptions* of all the most eminent of the *London* physicians, both of the last and of the present generation. A minute acquaintance with, and a ready remembrance of, celebrated receipts, have been of infinite use in my own fortunes, and you will find it absolutely necessary, with most patients, to write a *new* prescription at every visit, or, at least, to make some change in the colour or taste of the draught,—otherwise you will not be considered entitled to your fee,—a circumstance which ought *never* to escape your memory.

"You ought also to attach yourself to a particular *hospital*, and select one which you know to be under the patronage of the Fellows of the College, so that at a future period you may have a good chance of being appointed to it. Were I to name one, I would certainly say *St. George's*, for there we are strongly fortified, and less likely to be injured by the restless spirit of reform—all *these* are true conservatives. The physician, surgeon, and apothecary, have each their distinct duties assigned to them. No one ever meddles with the duties of any department but his own, and they all cordially co-operate in *recommending* each other (when they have the opportunity), each in his own particular way. As you cannot for some time calculate on a vacancy occurring there, attend the Hospital regularly, in the *interim*, *twice a week*.

"Your time will be thrown away in attending to post-mortem examinations in the Hospital, but you should be very punctual in your attendance at all meetings of the 'Board,' to all the members of which you must be particularly civil,—for all men like little attentions. Dinners are also occasionally given, which you should attend regularly, and eat and drink freely, so as to obtain the character of being a 'good fellow.' At all their meetings, however, whether professional or convivial, be exceedingly careful how you enter on the subject of our college politics; and however much you may despise in your heart those half-educated 'Licentiates,' yet such allusions openly made might be very vexatious to their feelings.

"A messenger has just arrived commanding my attendance at Kensington Palace, which makes it necessary for me to postpone my remarks on several important points, more particularly on the propriety of your forming a matrimonial alliance, and on your various family duties, none of which are to be considered as of minor importance. Yours, with much truth and sincerity,

——.

"London, Dec. 30th, 1833."

ABUSES AT ST. BARTHOLOMEW'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—Notwithstanding the numerous grievances which your valuable LANCET has removed at Bartholomew's Hospital, there are still, I am sorry to say, many more which imperiously require the immediate use of that all-powerful and never-failing remedial agent. I now solicit its use for the cure of the following complaints: viz. "There are no post-mortem examinations at this Hospital;" "the long-contemplated improvements in the operating theatre have not taken place;" and the want of "a new dead-house." These are just a tithe of them. I will now proceed to consider the first, the other two I shall postpone to a future opportunity. Since the commencement of this season, in October, we have had only one notice of a post-mortem, and that was conducted by Mr. Earle in the operating theatre. How is this, Mr. Editor? Do the post-mortems form a part of the "medical and surgical practice" of this Hospital? If they do, what has become of them; and when! aye, when! are they conducted? Many of the students believe that the "surgeons and physicians" are about to make this a separate part of our studies, and that an additional tax will be levied before we can witness the opening of dead bodies. If this be true, Mr. Editor, "What will become of us?" They have already got all my money, and, if they want any more, I shall be obliged to leave London.

This is a mysterious piece of business altogether, and when mystery prevails everybody asks questions which nobody can answer; this accounts for my being obliged to ask so many questions. But suppose that witnessing of autopsies forms a part of the "practice;" whose duty is it to give notice of it? Ask the house-surgeon if it be his, he answers No.—Ask the "dressers," they answer unanimously No.—Ask the beadles to take a notice to stick up,—they say, "I sha'nt!"—"I was employed," say they, "by the governors for the use of the hospital, and not by the medical men for the use of the students." Thus you see how we are treated. The universal cry is, What must be done?—Oh! is the universal reply, write to THE LANCET. Well, I have done so, and I will now patiently wait the result. Young men in the country well know what use to make of these defects at St. Bartholomew's Hospital. They may expect similar treatment if they intend to pursue their studies within its walls. Your obedient servant,

A BARTHOLOMEW PUPIL.

DR. OSBORNE'S SCARIFICATOR.

To the Editor of THE LANCET.

SIR,—By your journal of this date, I observe that Mr. Thompson of Whitehaven has entered his claim with Dr. Osborne, for the honour of inventing the instrument for scarifying, newly introduced to the profession by the latter gentleman, through the medium of the *Dublin Medical Journal*.

With their respective claims I am unacquainted, but probably it will not be considered impertinent in the cupper of a London Hospital to state his opinion of its efficacy.

Mr. Scott, an eminent surgeon of Norwich, whose active interest in all that appertains to his profession, is beyond praise, directed my attention to Dr. Osborne's paper immediately subsequent to its publication, and I have given the polytome a fair trial. The result is a perfect conviction that it is unsuitable for private practice. Long and equable incisions are certainly desirable, and this instrument will accomplish the first, and, with great caution, the second; but the objections considerably counterbalance those advantages. The operation is slow and painful, or, if done quickly, there is but little control over the length and depth of the incisions, and if employed on a restive patient it will be extremely difficult to use. With the box-scarificator, an inexperienced operator will sometimes produce much *inconvenience*, but the polytome in similar hands would prove *mischievous* and *disfiguring*.

I have essayed on a medical friend, and several hospital patients. They describe the instrument as inflicting a "*painful scratching cut*." Two or three, who had not been previously cupped, and on whom I tried both instruments, without intimation of my intention, described the click of the old instrument as *unpleasant*, but gave unequivocal indications of *torture* on the application of the new.

I am aware that the French surgeons are in the habit of making their incisions with a scalpel, but I much question if that mode of operating could be introduced here; and though Dr. Osborne and Mr. Thompson have a natural fondness for their offspring, and are, no doubt, more *au fait* in the use of the instrument than myself, and thus indulge in sanguine expectations of its success, I am convinced it can never be generally employed.

The medical officers of the Westminster Hospital, to whom I exhibited the instrument, without comment, were unanimous in their disapproval. Sir Anthony Carlisle,

with his characteristic humanity, observed, that in all operations the degree of pain inflicted on the patient should ever be a consideration of high importance, very justly adding, that the peculiar excellence of the old spring scarificator consisted in the incisions being given with a "*rapidity passing sensation.*" A familiar illustration of this principle is found in the gunshot wound.

Though somewhat irrelevant, I may be permitted to observe, that Sir Anthony is attached to the application of the *tourniquet* in cases of amputation, even where digital compression would suffice, having observed that the ligature materially lessens the pain of the operation. Analogous to this is the diminished sensibility of the surface over which a cupping-glass has just been affixed.

To both gentlemen, I, in common with others of my peculiar profession, feel indebted for their endeavours to supply a desideratum in the instrument of my vocation, and I trust my observations will be taken in good part. I will candidly own that my own attention has long been directed to the same end, but not yet with a sufficiently favourable result. I am, Sir, your obedient servant,

GEORGE F. KNOX,
Cupper at the Westminster Hospital.
14, George-Street, Adelphi,
Dec. 28th, 1833.

THE MEDICAL CORPORATIONS OF LONDON.

To the Editor of THE LANCET.

SIR,—In your leading article of this day, you comprise, under one general insinuation, the GRADUATES OF MEDICINE. You remark, that while the apothecaries are denouncing the Apothecaries Company, the surgeons the College of Surgeons, the Graduates "express, in very soft accents, their disapprobation of the proceedings of the institution in Lincoln's-Inn-fields, and loudly proclaim the benefits which have been conferred on the profession by the Worshipful Society of Apothecaries." And you then add, that the Graduates "vent their indignation against the institution in Pall Mall East."

These statements may be resolved into two:—

First, That the apothecaries condemn their Worshipful Company; that the surgeons condemn their Royal College; and that the graduates condemn their Pall-Mall-East College.

Second, That the graduates in medicine observe some *beauties* in the Worshipful Company, which the Licentiates of that Company, labouring under its oppression, do not, from that very circumstance, so readily perceive.

In regard to the first statement, I have merely to ask a person of your discernment, whether it is to be wondered at, or to be slightingly treated, that when the apothecaries see and decry eloquently the evils of their Company, and the surgeons of their College, the *Graduates* should see and vent the torrent of their indignation against the institution in Pall Mall East? Surely, you will not deny to the Graduates the privilege of crying when *they* are trodden upon, when you give that privilege to the apothecaries and surgeons? Solomon says (I think he is the person), "The heart knoweth its own bitterness;" surely, then, as the apothecaries know theirs, the surgeons theirs, the Graduates may be permitted to know and declare theirs. In *unexcited* moments, Sir (for when you are writing or dictating the *leader*, I have no doubt that you are much excited, that you often have a good laugh, often feel the *temporals* throbbing from the activity of destructiveness, combativeness, and conscientiousness, when some abuse presents his hideous deformity before your mental vision), I am sure you will allow the Graduates the privilege, which you cannot deny even to the worm, of turning when trodden upon.

You, however, in your leading article, with the view, no doubt, of showing the imperfect view of reform these Graduates possess, institute a comparison between the three corporate bodies, and state that "the College of Physicians is really a liberal, pure, noble institution, when compared with those receptacles of tyranny and of avarice—the College of Surgeons, the Company of Apothecaries," p. 529; and you point out the circumstance wherein the liberality of the College of Physicians is manifested, namely, *that they will examine any one who has a medical degree.* But, Sir, you should have added what you know full well, that the *peculiar* feature in the College of Physicians, which makes it stink in the nostrils of every enlightened man, is that no man can become a Fellow, unless he be of a *particular religious creed.* I ask, Sir, is there any stamp of illiberality so base, so disreputable, so insulting to the human conscience, belonging either to the Apothecaries Company or to the College of Surgeons? The answer is—No. Well, Sir, are not Graduates justified in holding up to the indignation of mankind such an audacious interference with the rights of conscience, such a determination on the

part of the College of Physicians, that none shall buy, sell, or get gain, unless they have the mark of the *beast* on their foreheads—that is, unless they will prostitute their consciences by bowing at the idol of Mammon?

You, then, in pointing out the evils of the Apothecaries Company, charge them with a crime that they are not guilty of—namely, that of *refusing to examine graduates of medicine of our chief universities.*" This is not the case. The Apothecaries Company will examine *any graduate of any university* upon the strength of the fact of the possession of a DEGREE, which they could not upon the strength of the *diploma of the College of Surgeons of London*, because the *examination* for *that* diploma does not ascertain the knowledge of the person examined upon any subjects but anatomy, physiology, and surgery; in fact, you state that the person pays "his twenty-two guineas for the privilege of being egregiously humbugged."

With regard to the College of Surgeons, I have not heard a *word of praise* from any Graduate. In regard to the Apothecaries Company, I have *heard* and *given praise*, and have *heard* and *given condemnation*. In fact, the only candid man, the only true philosopher, is he, whose mind is open to the valuable, as well as to the bad points, in a person's character. No Graduate has argued that the Apothecaries Company is immaculate. No Graduate will approve of the close system of election. And in regard to the persecution of regularly-licensed practitioners, although it must be regretted, yet it must be remembered, that it is the *law*,—a bad one indeed; that is, when exercised against men who have a *diploma, in the obtainment of which they passed through an examination that ascertained their capacity to practise as apothecaries*; such an examination, for instance, as that of the College of Surgeons at *Edinburgh*.

In regard to the Apothecaries Company, I have no hesitation in saying, from personal experience with pupils, that pupils now are as different from pupils six years ago as it is possible to conceive. Their increase in knowledge and in practical information; their acquaintance with the weapons of their art; their superior education; and the general superiority of their acquirements, are so decidedly marked, that the observer is led to inquire the cause. He finds that the course of instruction required by the Examining Board, before which at the end of their studies they have to go, is so extended that *they are obliged* to study. Again, look at the care the Apothecaries Company take, that the *lecture* testimonials shall not be mere *entrance* testimonials, but *attendance* testimonials. Again, the Company have opened their *garden* to students in the *summer* months. I look upon this as a most valuable advantage to students. Again, they give a yearly prize to the best botanist of the year. Is not this an advantage? To prevent a student galloping through his course of medical education, they order a *regular order* to be adopted in his studies; and this order I consider is very advantageous; and so will all who have had the misery of being obliged to attend hospital lectures, &c. &c. all in *one* year.

I think, Sir, therefore, that the Graduates are not to be blamed in seeing some beauties scattered as reliefs among the deformities of this Company.

In conclusion, however, I must express my belief, and in expressing it my regret, that the *majority* of the *Licentiates* wish only to be admitted as Fellows within the College of Physicians, and, if so admitted, that they would leave those few Graduates who will not disgrace themselves by joining such a College, and the rest of the medical profession, to get reform as well as they can. This is my opinion of the Licentiates as a *body*. There are some noble exceptions: Dr. Johnson is one, and many others could be named.

Believe me yours in well-wishing,

JOHN EPPS, M.D.

89, Great Russell-street,
Dec. 28th, 1833.

*** In publishing the above letter, we believe Dr. EPPS will find that he has been somewhat unfortunate in re-opening a discussion on the comparative merits or demerits of the medical corporations of this metropolis. We have not space to resume the subject at present; but may here simply state that Dr. EPPS has succeeded in compressing into a very short compass a rather long string of inaccuracies. Numbering them as we proceed, we shall offer the required comments in the next LANCET.

1st. We did *not* state "that the graduates condemned *their* College in Pall Mall East."

2nd. We did *not* state, nor even insinuate, "that the graduates are trodden upon by the College of Physicians;" but, on the contrary, we alleged that many of them

were persecuted by the Company of Apothecaries.

3rd. It is *not* correct to state that a man cannot become a fellow of the College of Physicians "unless he hold a particular religious creed,"

4th. It is *not* correct to state that "the medical diploma of any university will procure for a candidate an examination at Apothecaries Hall."

5th. We did *not* state that any graduate had "praised" the College of Surgeons.

6th. It is *not* correct to state that it is lawful for the Apothecaries Company to "*persecute* regularly-licensed practitioners."

GUY'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—Though I feel much indebted to you for your attention in having devoted a portion of your valuable columns to a *refutation* of the charges contained in the letters I sent you, I *still* think your report of the lectures and practice at Guy's Hospital was not so fairly given as it ought to have been. I am sorry to perceive that you plead ignorance in answer to many of the charges, and entirely overlook the principal cause of complaint, namely, the ill effects your strictures would produce on the public with respect to the gentlemen who have been educated there. I cannot believe that you can really wish it to go forth to the world that a gentleman who has studied at Guy's is not as well qualified to follow his profession as the student of any other hospital, yet this is precisely the idea your report conveys, and is doing the Guy's student a very great injustice. Not having been at Guy's Hospital for some time, I can say nothing with respect to the asserted neglect of the patient in September last; if your information is incorrect, I trust some gentleman will contradict the statement. I can only remark that during three years attendance at the Hospital I never witnessed anything of the kind. You appear to have taken a great deal of pains to find some charges against Dr. Addison and Mr. Key; I know nothing of the cases you mention, and of course should not presume to attempt a contradiction of them, as these gentlemen doubtless will, if they think it necessary; you seem, however, to forget that such cases *may* have happened at other hospitals, which have not fallen under your displeasure, and *therefore* have not been recorded. In conclusion I can only express my regret that Guy's Hospital has not had a better advocate than myself to contend with a gentleman of your great abilities; and with many thanks for the kind attention you have favoured me with, I remain your constant subscriber,

A LATE PUPIL OF GUY'S HOSPITAL.

GRACCHUS TO THE GREEN MAN.

(NOTE I.)

SIR,—The elder Goths attempted, and nearly succeeded, in eradicating literature and science from the face of Europe. Their successors cannot hope to do this now; but they are working hard to retard the progress of learning and knowledge in the lower grades of society, through which means the upper classes hope to profit, by retaining their literary *ranks*, without much trouble or exertion. You ask a contemporary and "ancient ally," if he means to say that the candidate practitioner (that is to say, the general practitioner) will be required to possess an amount of education equal to that taught in the Scotch Universities. The contemporary answers in the affirmative, and adds, rather sarcastically, that "the education of the general practitioner is now very nearly as good, and *ought to be* somewhat better, than that of the Scotch doctor who asks the question. Dr. Johnson is perfectly correct in this assertion. The Scotch doctor took his degree in Edinburgh, after *three* winter sessions of study (now four), and a short course of botany in the summer. He then underwent an inefficient examination, chiefly in Latin, and came out a "physician!" Need I compare this with the education and examination of the general practitioner of the present day? And yet, friend Green, you have had the imprudence (to call it by no harsher name) to hold up the education of the Scotch doctor as a point utterly unattainable by the English surgeon!! Verily, friend, thy proverbial Scotch caution and discretion forsook thee on this occasion!

You speak of "a forced level to which all must rise, and which none can pass, as destructive of all emulation." Indeed! What is to prevent any individual from passing this higher level than now exists? "Oh," you will say, I suppose, "If there were no distinction between

Fellows and Licentiates of the College of Physicians, where would be the field for emulation? Of what use would be sycophancy and subserviency, if a fellowship or a commissionership were not occasionally to reward the professor of those noble sciences?" But how are a high level, and one uniform denomination, to destroy emulation? The Fellows of the College have the same level and rank; so have the Licentiates. Has this level destroyed ambition and emulation among them? Has no FELLOW risen above his level in the grade? Has Elliotson's emulation been crushed by being in the *high level* of his class? Has no Licentiate risen by talent and emulation above his level? Is there no Licentiate, friend Green, who has got above yourself, in the estimation of his professional brethren, or society at large? Is it possible that a journalist, who is the organ (I will not use the vulgar expression which you apply to a contemporary) of the medical aristocracy or oligarchy, should be so defective of common sense and common reason, as to maintain that a high level of medical education, or of any education, would tend to "destroy emulation?" It would have precisely the opposite effect. As distinction could then result *only* from superiority of knowledge and talent, and could not be purchased by interest or sycophancy, the real and effectual stimulus to exertion would be constantly supplied, and talent would, still more surely than at present, attain *its level*,—far above the general level, however high that might have been fixed. So much for the two points now discussed. I shall pay my respects to you, friend Green, whenever your lucubrations attract the attention of your devoted servant,

GRACCHUS.

London, Jan. 2, 1834.

PROPAGATION OF LEECHES.

To the Editor of THE LANCET.

SIR,—On perusing the interesting account regarding leeches, in your Journal of this day, I thought the following extract from a lecture on leeches, delivered by me at the *Westminster Dispensary*, might be useful. Yours truly,

JOHN EPPS, M.D.

89, Great Russell-street, Dec. 28.

"Leeches, gentlemen, being thus valuable as medicinal agents, it has always been a matter of inquiry, *What is the best mode of keeping leeches so that they may* PROPAGATE?" A great variety of means has been tried. No success attended any plan but one that was devised by the physician-general to the forces in one of our West India islands (I forget the gentleman's name). He took *clay*, and having worked it well, placed it in the centre of a large vessel in which he kept leeches. He found in a short time that the leeches burrowed holes in this clay, so as to give it a *perforated appearance*; and, much to his delight, observed *young leeches to appear after a short time*. After this, this gentleman found no difficulty in obtaining any supply of leeches."

This extract strikingly corroborates one remark of Mr. Sherriff's, namely, that the *earth*, which he recommends to be put in the box, *will answer better* if it be of a *clayey* nature. And I have very little doubt that if he watches with care he will observe *ova* at the proper season.

J. E.

CORRESPONDENTS.

On handing the letter of *Dr. Fergusson* to our reporter, that gentleman states "that he did not consider Dr. Fergusson to have been acting in hostility to the eighth resolution, and did not by any means intend to employ the term 'warmth' invidiously. With regard to the word 'triumph,' all that was meant in the report was, that Dr. Copland succeeded ultimately in bringing the meeting to act in conformity with his first decision."—At the request of Dr. Fergusson, the letter of Dr. F. is withheld from publication.

NOTICE.—Dr. Epps has in the press an account of a case of epilepsy, which was cured after the disease had existed twenty years.

G. J. P.—In reply to questions 3, 4, and 5, we may state that M. P.'s have now little influence in procuring those appointments. The regulations are too long to insert in this place, but if our correspondent will call at the offices of the Army and Navy Boards, he may obtain copies of them.

The enigma from Aylesbury or Woodbridge is unintelligible to us.

Ein Naturverstandiger. — We have searched our list, and cannot find a single instance of early or late lectures on anatomy. Half-past two is the usual hour.

A Pupil should ask Dr. R. himself.

Preparing for publication "The Study of Osteology, or History of the Bones of the Human Body." Illustrated by five imperial folio plates, from Albinus and Cheselden. By T. Castle, F.L.S. Trin. Coll. Camb. &c.

ERRATUM.—In leader, last week, page 529, line 13, transpose one of the "and's" to the end of the line.